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A STATISTICAL STUDY OF 2,921 CASES OF APPENDICITIS

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D. HENRY POER, M.D.
AND
PAUL MERRELL, M.D.
CINCINNATI

From a study of a series of 842 cases admitted to the Cincinnati General Hospital from Jan. 1, 1915, to Jan. 1, 1924, reported in 1926, it was deduced that (1) an unusually high percentage of cases entered the hospital presenting perforative appendicitis and its complications, abscess or peritonitis, and (2) there still was some belief among our hospital staff that surgical treatment of appendicitis should be deferred for an interval rather than resorted to in the acute stage of the disease. This statistical study has been continued to include the years of 1924 through 1933 inclusive to determine whether the adoption in 1922 of immediate operation for acute appendicitis has changed in any way either of these deductions. We also present at this time our total statistics of this series of cases of appendicitis.

The series includes 2,921 cases of appendicitis admitted to the Cincinnati General Hospital between Jan. 1, 1915, and Jan. 1, 1934, a period of nineteen years. The vast majority of these cases have been treated in the surgical service of the hospital, although this number includes the few cases treated in the medical service. The preoperative, operative and postoperative data in the series have been studied in an effort to arrive at conclusions that may be of value in our subsequent treatment and are presented in the form of tables and charts.

PREOPERATIVE DATA

General.—The number of cases of appendicitis admitted to the hospital has notably increased each year, so that in 1932 there were four and a half times as many admissions as there were in 1915, or an increase of approximately 350 per cent. Our charts show, as has been repeatedly shown before, that appendicitis is a disease of adolescent and young adult life, as two thirds (68.6 per cent) of the patients were between the ages of 10 and 30 years (chart 1). It occurred more frequently in children under 13 years than in any decade over 40. Only forty-three cases occurred in persons over 60. The disease is almost twice as common in males as in females. In this series 63.6 per cent of the patients were males and 36.3 per cent females. Race does not seem to be an important factor.

From the Department of Surgery of the University of Cincinnati College of Medicine and the Cincinnati General Hospital.

History and Physical Observations.—One of the most striking observations in the preoperative data is the long interval of time that elapsed between the onset of the acute attack and admission to the hospital (table 1). With the knowledge of the disease that should be common to the physicians of the community, it is surprising to find that the average elapsed time between the onset of the attack and admission to the hospital is about four days (3.8 days, or 91.2 hours). When one breaks the series of acute cases into three groups—unruptured cases, perforated with abscess formation, and perforated with general peritonitis—the average elapsed intervals of time between onset of symptoms and operation are respectively 44, 129.6 and 80.64 hours. It is to be noted that the average elapsed time for the entire series was decreasing up to 1932 but that it has been higher during the past two years. This long interval is undoubtedly responsible for the high percentage of perforated appendixes in the series and justifies the statement that, if results in the treatment of appendicitis are to be notably improved, physicians must advise and patients agree to earlier surgical treatment. It will subsequently be shown how advantageous it is from the standpoint of mortality, complications and period of hospitalization to operate before perforation of the appendix has taken place.

A review of the histories of 2,035 patients who entered the hospital with acute appendicitis shows that 837, or 41.12 per cent, had had previous attacks, while 1,198, or 58.88 per cent, entered in the first attack. When one considers that 42.5 per cent of the acute cases presented perforated appendixes on admission, one realizes the danger of treating expectantly the first attack of appendicitis in the hope that it will subside.

With regard to the symptoms and signs of acute appendicitis, slightly more than half of our cases (53 per cent) presented what might be called a "typical" history (table 2). By that we mean the usual story of abdominal pain located most frequently in the epigastrium or around the umbilicus, followed by nausea and vomiting, and localization of the pain in the right lower quadrant (McBurney's point). However, abdominal pain of some kind was the most frequent symptom, occurring in 94 per cent of the cases. Pain on pressure over the appendix was present in nearly 100 per cent of the cases, and we consider this the most important single symptom. When this tenderness is present the burden of proof is certainly on the examiner to show that it is not due to acute appendicitis. The pain of pressure, of course, varied a great deal in type, intensity and radiation. Muscle spasm and rigidity were usually, but not always, present. In some cases pain was elicited only on very deep pressure; in these cases the appendix was usually behind the cecum or in the pelvis. Nausea and vomiting are the next

most reliable symptoms, occurring in from 70 to 80 per cent of the cases. These symptoms occurred usually in the first few hours of the disease, but in some cases did not appear until late.

A rectal or pelvic examination was of great aid in establishing a diagnosis; tenderness, induration or a mass was felt in almost half of the cases (44 per cent). Rectal examination is of particular value in children in whom the diagnosis is frequently very difficult.

TABLE 1.—*Average Elapsed Time Between Onset of Acute Attack and Admission to Hospital*

Year	Elapsed Time in Days	Year	Elapsed Time in Days
1915	4.7	1925	3.2
1916	6.5	1926	3.8
1917	6.1	1927	2.7
1918	5.8	1928	2.1
1919	3.5	1929	3.05
1920	4.8	1930	2.8
1921	4.3	1931	2.5
1922	4.5	1932	2.9
1923	3.9	1933	3.05
1924	3.7		
Average for all cases	(91.2 hours)		3.8
Average for unruptured cases	(44 hours)		1.83
Average for abscess cases	(129.6 hours).		5.43
Average for cases presenting general peritonitis	(80.64 hours)		3.36

TABLE 2.—*Clinical Data in Cases of Acute Appendicitis*

Total Cases	Nausea	Vomiting	Abdominal Pain	Rectal Tenderness	Purgatives	Typical History
1,465	1,156	1,081	1,387	655	523	778
	78%	73%	94%	44%	36%	53%

Approximately a third of the patients (36 per cent) (table 2) had taken some form of a purgative before admission to the hospital. Among 353 cases of acute appendicitis, studied during the past five years, in which a history of having taken purgatives was obtained, the incidence of perforative appendicitis was 34.3 per cent. This was considerably higher than the incidence of perforation among the other 656 acute cases, treated during the same period, in which a history of taking purgatives was not obtained. Often the purgative was taken by the patient before seeking medical help, but altogether too frequently it was prescribed by the attending physician, apparently without regard for the consequences. Often the story was given us by a patient that he went to the "corner drug store" and was told by the druggist that he had "just the thing for the gas on your stomach." Radio announcements have not helped to reduce the mortality of acute appendicitis. In one day we heard forty-four different announcements over the radio for medicines which would relieve abdominal pain, gas, constipation, distention, and the like.

The average temperature, pulse rate and leukocyte count in the acute cases on admission show a very striking uniformity throughout the years (table 3). The temperature is rarely over 100 F. in simple, acute cases but may be much higher (102-104) in cases of gangrenous appendicitis and peritonitis. The temperature in children with simple acute appendicitis may be elevated to 102 or 103. The leukocyte count is found to vary with the degree of infection, being much more elevated in cases of gangrenous or perforated appendicitis.

OPERATIVE DATA

It is seen from table 4 that, of the 2,921 cases, 2,035 were diagnosed as acute and 810 as chronic, while in fifty-nine cases a mistaken diagnosis of appendicitis was made. The diagnosis of these cases was made either at the operating table alone or at the operating table and in the laboratory. In seventeen cases in which operation was not performed, the diagnosis was made at the autopsy table. In the earlier histories it is rare to find a pathologic diagnosis other than that made at the operating table, but this is usually admitted to be sufficient.

Of the 2,035 cases of acute appendicitis in which operation was performed, 1,270, or 57.5 per cent, were found in all stages of acute inflammation, including gangrene, but perforation had not occurred; in 865, or 42.5 per cent, operation revealed that perforation had occurred and there was either a localized abscess or varying degrees of peritonitis. As will be seen in table 5 the yearly percentage of perforative appendicitis varied between 31 and 60 per cent. Just as the time interval between the onset of the attack and admission to the hospital has not decreased appreciably with the years, so the percentage of perforative appendicitis has likewise not appreciably diminished. There is seen to be a very close parallel in the increase of perforative appendicitis with the increase of time from onset of symptoms to time of admission to the hospital. Of the 865 cases which were found to be perforated at operation 576 (28.3 per cent of the total cases, or 66⅔ of the total perforated appendixes) presented localized abscesses, and 289 (14.2 per cent of the total cases, or 33⅓ per cent of the total perforated appendixes) presented varying degrees of peritonitis. The peritonitis was advanced and widespread in the majority of the cases.

TABLE 3.—*Average Temperature, Pulse Rate and Leukocyte Count in Acute Cases on Admission*

Year	Number of Acute Cases	Average Temperature	Average Pulse Rate	Average Leukocyte Count	Total Number of Leukocyte Counts
1915	44	100.2	98	20,800	20
1916	59	100.9	102	16,800	36
1917	63	100.1	112	19,700	27
1918	44	100.2	98	23,100	32
1919	50	100.0	97	19,600	41
1920	64	100.2	93	16,600	52
1921	86	100.2	100	17,000	61
1922	98	100.1	99	16,700	93
1923	74	100.3	100	16,600	67
1924	77	99.1	98	17,700	72
1925	104	100.2	100	16,400	101
1926	112	100.1	97	17,500	103
1927	120	100.1	94	15,300	114
1928	133	100.2	96	16,200	132
1929	162	100.4	99	14,300	158
1930	134	100.4	102	18,600	126
1931	174	100.2	100	15,200	171
1932	232	99.4	99	14,400	228
1933	206	99.5	98	14,500	197
Totals	2,035				1,841
Averages		100.1	99	17,200	

TABLE 4.—*Pathologic Condition as Determined by Operation or Autopsy*

Year	Acute	Chronic	Mistaken Diagnosis of Appendicitis	Autopsy Diagnosis	Grand Total
1915 to 1933	2,035	810	59	17	2,921

Seventy-two different surgeons operated in 2,806 cases of appendicitis; forty-one surgeons performed less than ten operations each; nine surgeons from ten to twenty operations; six surgeons from twenty to forty operations, and seven surgeons from forty to 150 operations. Nine surgeons performed 150 appendectomies or more. With such a large number of surgeons oper-

ating, the mortality of the individual surgeons varied greatly. The total mortality rate for all cases was 6.3 per cent for the nineteen years.

As was stated in the opening paragraph, the rule through the past several years has been to operate in all cases of acute appendicitis as soon as the diagnosis has been established. The incisions used in operating for appendicitis have varied somewhat according to the tastes of the individual surgeons. Prior to 1922 the right rectus incision, was used as a routine whereas since 1922 the McBurney incision has been the routine incision. We believe that with almost no exceptions acute appendicitis can be adequately treated through the McBurney approach, whether it is an unruptured appendix, an appendiceal abscess or peritonitis. Operations so performed are less severe and postoperative complications such as obstruction, broken-down wounds and ventral hernias are less common. Adequate drainage is more easily and safely secured through a McBurney incision.

TABLE 5.—*Pathologic Changes in Acute Cases as Determined by Operation or Autopsy*

Year	Number of Acute Cases	With Abscess		With Peritonitis		Total Cases of Perforation	
		Number	Per Cent	Number	Per Cent	Number	Per Cent
1915	44	19	43.2	5	11.3	24	54.5
1916	59	28	47.4	3	5.1	31	52.5
1917	62	24	38.7	3	4.8	27	43.5
1918	44	20	45.4	4	9.1	28	54.5
1919	50	16	32.0	4	8.0	20	40.0
1920	64	29	45.6	6	9.1	35	54.7
1921	86	40	46.5	12	13.9	52	60.4
1922	98	36	36.7	7	7.1	43	43.8
1923	73	29	39.7	3	4.1	32	43.8
1924	77	31	40.2	10	13.0	41	53.2
1925	104	32	30.9	17	16.3	49	47.1
1926	112	34	30.3	19	17.0	53	47.3
1927	120	36	30.0	9	7.5	46	37.5
1928	133	41	30.8	13	9.8	54	40.6
1929	163	30	19.0	19	12.0	49	31.0
1930	134	31	15.7	31	23.1	52	38.8
1931	174	26	15.0	31	17.8	57	32.8
1932	232	31	13.4	64	27.5	95	40.9
1933	206	53	25.7	29	14.0	82	39.7
Totals	2,035	576	28.3	289	14.2	865	42.5

In 2,680 of the 2,806 surgical cases the appendix was removed at the primary operation; in 126 cases it was not removed. The diagnoses of the cases in which the appendix was not removed at the primary operation were (1) perforative appendicitis with abscess, eighty-seven cases; (2) perforative appendicitis with peritonitis, thirty-five cases, and (3) perforative appendicitis with peritonitis and intestinal obstruction, four cases. In fifteen of these cases the appendix was removed at a subsequent operation.

A description of the operations in this series will not be detailed. The common practice, as has been stated before, since 1922 has been to use the McBurney incision in all cases in which the diagnosis of appendicitis seemed more reasonable. The subsequent steps in this operation depend on the conditions found:

(*a*) Acute nongangrenous appendicitis: The appendix is delivered, the vessels of the meso-appendix are ligated with silk by the transfixion method and the meso-appendix is divided to the base of the appendix. A peritoneal cuff is dissected back from the base of the appendix, the appendix crushed, ligated with catgut and excised. The stump is treated with pure phenol (carbolic acid), followed by alcohol, and inverted under a purse string suture of fine silk. A second suture, or a series of Halsted mattress sutures, is used to cover the inverted stump. Great care is exercised to cover all raw surfaces, such as the divided meso-appendix. The peritoneum and muscular layers are closed throughout with silk.

(*b*) Acute unruptured gangrenous appendicitis: The same general procedure is carried out except that catgut is used for ligatures and suture material save for inversion of the appendiceal stump, where silk is always used. In the presence of turbid intraperitoneal fluid, drainage is never employed unless smears of this fluid show many organisms. If the removed appendix tested by water pressure shows no perforation, drainage is almost never employed, even though there may be some organisms in the turbid fluid. An exception to this rule is when grossly necrotic tissue must be left behind in the region of the removed appendix.

(*c*) Appendiceal abscess: An attempt is always made to remove the appendix, but in very ill patients the search for the appendix is not unduly prolonged. The abscess cavity is drained with cigaret drains and the wound closed very loosely with catgut about the drains. We are not sure that any closure of the wound should be attempted, for, as has been pointed out by others, sloughing of the tissues, due to the infection always present, may well be greater if sutures are used.

(*d*) Acute perforative appendicitis with peritonitis: The appendix is removed, if possible without too much manipulation, and drainage with soft cigaret drains is established through the McBurney incision. Care is exercised in the type of drain employed and its proper placement, for it would appear that fecal fistula and intestinal obstruction are in part dependent on these factors.

TABLE 6.—*Postoperative Wound Infections in Cases Without Drainage*

Total number of operations without drainage		1,881
Total number of wound infections		124
Acute unruptured	76	
Acute gangrenous with cloudy fluid (not drained)	23	
Chronic	25	
Percentage		0.06

TABLE 7.—*Mortality by Yearly Periods*

Year	Patients Operated On	Operative Deaths	Operative Mortality	Patients Not Operated On	Non-operative Deaths	Total Mortality
Right rectus incision used as a routine						
1915	63	6	9.5	1	1	10.9
1916	78	4	5.1	3	0	4.9
1917	77	4	5.2	5	0	4.8
1918	46	5	10.8	9	1	10.9
1919	59	7	11.8	8	0	11.4
1920	96	15	15.6	12	0	13.9
1921	120	13	10.8	17	2	10.9
Average 1915 to 1921 inclusive, 9.53%						
McBurney incision used as a routine						
1922	130	6	4.6	14	2	5.5
1923	90	2	2.2	13	1	2.9
1924	128	11	8.6	0	0	8.6
1925	170	11	6.8	0	0	6.4
1926	180	8	4.4	0	0	4.4
1927	173	6	3.4	1	1	4.2
1928	224	10	4.4	1	1	4.8
1929	239	13	5.4	12	1	5.8
1930	209	12	5.7	8	0	5.5
1931	211	9	5.4	10	1	4.9
1932	291	12	4.1	7	1	4.3
1933	244	18	7.3	6	1	7.6
Totals	2,806	176	6.3	115	13	6.4
Average last 12 years, 5.4%						

was a simple stitch abscess. There were only three instances of a completely broken down wound with evisceration of the intestine. It is interesting to note that all of these occurred through the right rectus incision. Twenty-three of these infections were in cases of acute gangrenous appendicitis presenting cloudy peritoneal fluid in which the wounds were closed without drainage. In none of these did peritonitis or a

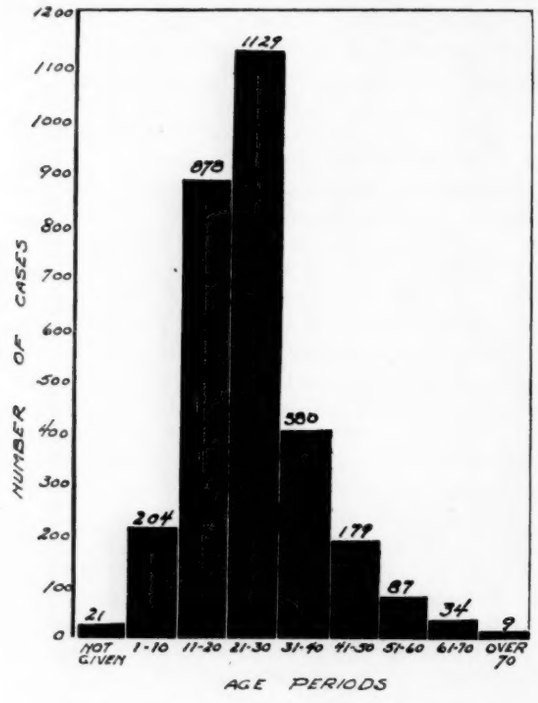

Chart 1.—Age periods of patients in the series.

localized abscess develop. This low percentage of infection would justify the statement made previously that drainage in these cases is not necessary. The incidence of infection has decreased since 1922 in spite of the fact that in acute cases without cloudy fluid and in chronic cases the wounds have been closed with silk as a suture material.

The complications that accompanied the primary condition on the admission of patients, or developed subsequently, form a large and miscellaneous group: tuberculous peritonitis, four cases; fecal fistula, twenty-

TABLE 8.—*Mortality in Operations According to Diagnosis*

Diagnosis	Patients Operated On	Number of Deaths	Mortality, per Cent
Acute unruptured	1,147	10	0.86
Ruptured with abscess	576	66	11.4
Ruptured with peritonitis	280	95	33.9
Mistaken diagnosis of acute appendicitis	59	4	6.7
Chronic	734	1	0.13
Totals	2,806	176	6.3

nine; intestinal obstruction, twenty-three; subphrenic abscess, thirteen; liver abscess, eight; pneumonia, thirty-two; pulmonary embolism, four; pelvic abscess, forty-five, and numerous other complications. Fourteen cases occurred in pregnant women with only one abortion.

The mortality data are presented in table 7. In the nineteen year period from 1915 to 1933 inclusive, 2,806 patients with appendicitis were operated on with 176 deaths, or an operative mortality rate of 6.3 per cent. One hundred and fifteen patients were not operated on, with thirteen deaths, a mortality rate of 11.3 per cent. The total mortality rate for all the cases, including those in which operation was not done, was 6.4 per cent. It is to be noted that the thirteen patients who died in the nonoperative group had advanced peritonitis on admission to the hospital and died within the first twenty-four hours.

An examination of the operative mortality by one year periods shows a considerable variation. It is interesting to note the decrease in the mortality rate with the advent of the routine use of the McBurney incision in 1922. Prior to this time 409 patients with acute appendicitis had been operated on through a right rectus incision and the mortality rate was 9.5 per cent. Since 1922 there have been 1,626 patients with acute appendicitis operated on through a McBurney incision with a total mortality rate of 5.4 per cent. The significance of this contrast is slightly altered by the fact that the incidence of the cases presenting abscess and peritonitis fell from 51.3 per cent in the first series to 41.6 per cent in the second. While the decreased mortality cannot be attributed to the McBurney incision alone, we feel convinced that the right rectus incision, by its greater magnitude and its attendant complications, contributed to the mortality of the very ill patients. It is sad to note, however, that there has been an increase in the operative mortality during the past few years when the interval of time between onset of symptoms and operation has increased. This fact leads one to remember Garlock's [1] statement that "the mortality rate of acute appendicitis is directly dependent upon the length of time between the onset of symptoms and operation."

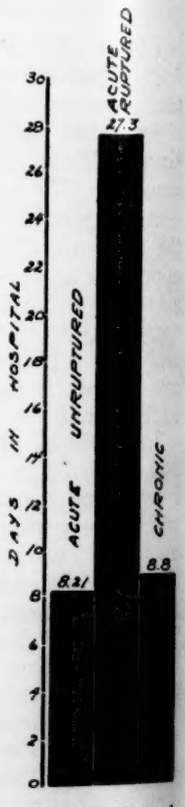

Chart 2.—Days of hospitalization in acute unruptured, acute ruptured and chronic cases of appendicitis.

An examination of table 8 shows in a striking way the differences in the mortality following operations in the different varieties of appendicitis. In 1,147 cases of acute unruptured appendicitis there were ten deaths, a mortality rate of 0.86 per cent (in the last 587 cases, three deaths, or a rate of 0.51 per cent); in 734 cases of chronic appendicitis there was one death, a mortality rate of 0.13 per cent; in 576 cases of perforative appendicitis with abscess there were sixty-six deaths, a mortality rate of 11.4 per cent, and in 280 cases of perforative appendicitis with spreading or generalized peritonitis there were ninety-five deaths, a mortality rate of 33.9 per cent. Keyes [2] has reported similar statistics with similar results. This difference in mortality is sufficiently striking to warrant the statement that, in the absence of very definite contraindications, operation is immediately advisable in all cases of nonperforative acute appendicitis. The mortality rate in such cases (0.86 per cent) does not warrant the waiting for an "interval" in the hope that the acute attack will subside.

1. Garlock, J. H.: Acute Appendicitis: Controllable Mortality Factors, Am. J. Surg. **23**: 248 (Feb.) 1934.
2. Keyes, E. L.: The Mortality from Appendicitis and the Causes of Death Following Appendicitis, Ann. Surg. **99**: 47 (Jan.) 1934.

From a purely economic standpoint, early diagnosis and operation are very important. The average total days of hospital stay in cases of acute unperforated appendicitis was 8.21 days, whereas in those presenting perforation and formation of abscess or peritonitis the average hospital stay was 27.3 days (chart 2).

SUMMARY

In a report of 2,921 cases of appendicitis admitted to the Cincinnati General Hospital it is noted that appendicitis is a disease of adolescent and young adult life and that it is twice as common in the male as in the female.

The average elapsed time (3.8 days) between the onset of symptoms and admission to the hospital was much too long for proper surgical treatment, and the mortality rate will remain high as long as patients are not operated on earlier. Complications will also be frequent and the hospitalization period long.

Approximately 60 per cent of the acute cases were admitted during the first attack and approximately 40 per cent of all cases were admitted after the appendix had ruptured. These facts reveal the danger of expectant treatment.

The use of purgatives was found to lessen very definitely the patients' chances of recovery. The incidence of perforation and death was much higher among those who had taken cathartics.

In more than 40 per cent of the cases of acute appendicitis, perforation had occurred before admission to the hospital and the percentage of perforations has decreased very little during the last few years. Over 98 per cent of the deaths from appendicitis were due to the complications accompanying perforation.

The mortality rate in acute unruptured appendicitis (0.86 per cent) was low in comparison with the mortality rate after rupture (with abscess formation, 11.4 per cent; with peritonitis, 33.9 per cent).

The death rates for cases presenting abscess and general peritonitis are very high in comparison with the rates reported by many surgeons who have adopted the more conservative methods of treatment. Since this study was made we have been using the conservative or Ochsner [3] treatment for the cases in which we have thought it was indicated, and it will be interesting to make a comparison of the death rates at a later date.

3. Ochsner, Alton: The Conservative Treatment of Appendiceal Peritonitis, New Orleans M. & S. J. **87**: 32-39 (July) 1934.

Scientific Prognosticators.—It is an all too common practice of scientific publicists and prognosticators to give free vent to their imaginations in a most unscientific way by picturing our descendants as flying through interplanetary space . . . or banishing old age by administration of glandular extracts. No doubt many of the past triumphs of science were, relatively to the times, as spectacular and even more unexpected than these would be. However, scientific progress is not a great leap of imagination but a steady process, like the advance of a great army; at times strategic positions are captured, as when the positive electron (positron) was discovered; at times there is a steady "mopping up" process all along the line, as when the systematic search for chemical isotopes followed the first discovery; at times there is retreat, as when a theory is proved untenable; at times a new powerful engine of this scientific war is invented, like the radio tube amplifier. While the scientific campaign is generally well planned in advance and directed toward certain main objectives, it is also, on occasion, opportunistic in that its center of activity may be quickly shifted by some new discovery or idea which discloses new territories to be conquered.—Compton, Karl T., President, Massachusetts Institute of Technology: What's Next in Science? *Vital Speeches* **2**:250 (Jan. 27) 1936.

THE PROBLEM OF NERVOUS AND MENTAL SEQUELAE IN CARBON MONOXIDE POISONING

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In seeking information concerning the incidence and characteristics of nervous and mental sequelae following carbon monoxide poisoning, one is aided only in a limited way by the literature. It is true that there is virtual agreement as to the pathogenesis of the lesions in the brain following fatal, acute carbon monoxide poisoning. As Haldane [1] points out, degenerative changes are caused by anoxemia of the brain as the result of the fact that much of the circulating hemoglobin is combined with carbon monoxide to the exclusion of oxygen. Throughout the brain there are areas of perivascular and perineuronal edema with varying amounts of nerve cell degeneration together with small hemorrhages due to diapedesis of red blood cells. The changes apparently are most marked in the corpus striatum and cortex. These pathologic changes, however, describe cases of fatal poisoning. In contrast, almost no information is available concerning the pathologic changes in human cases in which the acute stages of carbon monoxide asphyxia are survived.

With regard to the actual incidence of permanent after-effects in carbon monoxide poisoning, unanimity of opinion is not found. The more comprehensive monographs on the subject [2] usually present conclusions drawn from cases reported in the literature rather than from cases actually seen by the authors.

Glaister and Logan,[2] twenty years ago, made sweeping statements of severe nervous and mental sequelae following acute or chronic carbon monoxide exposure. Sayers and Davenport [2] in 1930 cited from the literature cases showing after-effects. Certainly a considerable number of cases of sequelae in carbon monoxide poisoning are not in the possession of any one observer, or at least, if so, have not been reported. Rossiter,[3] during nineteen years' experience as company surgeon for the Carnegie Steel Company, observed 2,000 cases of carbon monoxide poisoning, which he reported in 1928. Only four patients had any after-effects beyond a few days of transient headache and weakness. In three of these four cases complete recovery occurred within two weeks. One patient, he reported, had a permanent psychosis. He felt sure that except in rare instances a patient, if not dead when found, can be resuscitated and will suffer only a few days of transient after-effects.

Our purpose in this paper is to contribute to an understanding of the incidence and characteristics of

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Cooperation was extended to the authors by the following members of the directing staffs of the hospitals visited: R. E. Blaisdell, M.D.; David Corcoran, M.D.; Ralph P. Folsom, M.D.; H. B. Lang, M.D.; Willis E. Merriman, M.D.; George W. Mills, M.D.; Charles S. Parker, M.D., and William J. Tiffany, M.D. Many others helped in the course of this investigation.

1. Haldane, J. S.: The Relation of the Action of Carbonic Oxide to Oxygen Tension, J. Physiol. **18**: 201-217, 1895.

2. Glaister, J., and Logan, D. D.: Gas Poisoning in Mining and Other Industries, New York, William Wood & Co., 1914. Lewin, L.: Die Kohlenoxydvergiftung, Berlin, Julius Springer, 1920. Hamilton, Alice: Industrial Poisons in the United States, New York, Macmillan Company, 1929. Sayers, R. R., and Davenport, S. J.: Review of Carbon Monoxide Poisoning, U. S. Pub. Health Bull. 195, 1930.

3. Rossiter, F. S.: Carbon Monoxide Gas Poisoning, Pittsburgh, Carnegie Steel Company, 1928.

after-effects of carbon monoxide poisoning. It is obviously important to any practitioner to know something about the prognosis of a patient acutely poisoned with carbon monoxide. What are the chances that he will escape serious after-effects, such as psychoses or paralyses? In addition, the entire question of the sequelae of acute carbon monoxide poisoning is a serious medicolegal problem at the present time.

TECHNIC OF INVESTIGATION

An investigation of the after-effects in cases of acute poisoning presents certain inherent difficulties. Serious after-effects are exceptions rather than the rule. The commonly experienced headache and weakness pass off in two or three days. In certain instances, however, serious manifestations do appear, either immediately or a few days after the accident. In order to uncover any considerable number of the latter cases it is necessary to have data on many thousands of cases of acute poisoning. We have such a collection of records covering the accidents occurring in the metropolitan area of New York City for a ten-year period. This collection is unique and probably cannot be duplicated elsewhere.

TABLE 1.—*Carbon Monoxide Calls Made by Emergency Squads of Various Gas Companies in Metropolitan New York Area*

	Counties of New York, Bronx, Queens and Westchester		County of Kings		
Year	Resuscitated	Dead	Resuscitated	Dead	Total
1925	*	*	444	209	653
1926	1,039	444	554	261	2,298
1927	872	398	473	291	2,034
1928	968	461	553	254	2,236
1929	1,106	545	645	269	2,565
1930	1,038	496	490	218	2,242
1931	989	494	795	289	2,567
1932	1,064	463	659	297	2,483
1933	892	408	613	239	2,152
1934	964	387	414†	148†	1,913
Total	8,932	4,096	5,640	2,475	21,143

* No figures available.
† Returns incomplete.

The New York metropolitan area is preeminently suited for this undertaking. Table 1, covering the ten-year period from 1925 to 1935, shows the number of calls made by the emergency crews of the gas producing companies of New York. Each of these calls indicates a carbon monoxide exposure.

In order to locate the cases showing mental and nervous sequelae, a search was made through the records of the seven state institutions that serve the New York City area. Records of forty-three cases were found in these seven hospitals. Each case represented unquestionably the after-effects of acute carbon monoxide poisoning. Of these patients, thirty-nine were poisoned during the ten-year period 1925-1935, while four were poisoned either before or after this ten-year period. In the same period there were more than 21,000 carbon monoxide exposures in the same area. Furthermore, there were more than 80,000 admissions to mental institutions drawing patients from this area. Of these 80,000 patients only thirty-nine owed their psychoses and neurologic signs to carbon monoxide poisoning. It is immediately apparent that nervous and mental sequelae sufficient to hospitalize a patient do not commonly follow carbon monoxide asphyxia.

Before presenting the results of the investigative work, it is well to describe the usual way in which cases of carbon monoxide poisoning are handled in the metropolitan area of New York City. The person, most often one attempting suicide, is discovered by friends or neighbors, who notify the police and ambulance service. These calls are relayed immediately to the maintenance stations of the emergency squads of the gas companies of the area, which maintain crews that are highly trained in resuscitation measures and are provided with approved inhalation apparatus. They respond to all calls arising from gas leaks, fires, and the like, and arrive at the scene with the fire companies and police. Emergency treatment is immediately started, consisting, in brief, of prone pressure artificial respiration and inhalation of 93 per cent oxygen and 7 per cent carbon dioxide, and is continued until the case is disposed of by the ambulance surgeon. The more serious cases are usually removed to a hospital for a few days' observation. Should the patient show any signs of a toxic psychosis on recovery from the acute poisoning he is transferred to a psychiatric ward for diagnosis. If the psychosis is persistent, he is transferred by court order to one of the state mental institutions for further treatment. Here an examination includes a complete history of the type advocated by all first class teaching hospitals. Any laboratory investigation may be ordered by the attending physician. The physical examination is complete. Whenever indicated, special examinations, such as neurologic, gynecologic or ophthalmologic, are carried out by visiting consultants. Throughout the stay in the hospital, progress notes by the attending physicians appear on the hospital record. In addition, the complete minutes of the discussions of the patient before the staff conferences are included. When the patient is at home on parole, in the care of a friend or relative, he is seen in the outpatient department. If he remains well he is discharged from the hospital service in about one year. In the case of deaths, no autopsies sufficiently complete to be included in this study were reported.

INVESTIGATIVE RESULTS

Records were studied in seven state mental hospitals near New York City: Brooklyn State Hospital, including Creedmore State Hospital, Manhattan State Hospital, Hudson River State Hospital, Central Islip State Hospital, Kings Park State Hospital, Rockland State Hospital and Pilgrim State Hospital. These hospitals were chosen because practically every admission of persons for mental illness in the metropolitan area of New York occurs in one of this group. Through the cooperation of the officers of the various institutions named, every record with the diagnosis of "psychosis due to drugs and other exogenous toxins (carbon monoxide or illuminating gas)" was examined. In one institution every record of patients in the hospital on that day was reviewed for even a mention of "gassing" at some time in the life of the patient. This undertaking meant that some 6,000 records were reviewed, each physician in charge of a unit in the institution being made responsible to uncover the mention of gassing among the records of the patients in his charge. By this means, from the 6,000 cases in the hospital on that day twenty-four were sifted out. Each of these case records was reread by one of us. In each of them the gas exposure —usually a suicidal attempt with the patient simply snatching at the stove in order to turn on the gas—had absolutely nothing to do with the psychosis. The psychoses in these patients varied, and antedated the gas exposure in every instance. As a result of this examination of the records of patients in one of the hospitals we have felt very confident that all cases pertinent to our study could be uncovered by the diagnosis index of the various institutions.

INCIDENCE OF SEQUELAE AFTER CARBON MONOXIDE POISONING

In table 2 the admissions by fiscal years of six of the seven mental hospitals are tabulated. Admissions to Pilgrim State Hospital are omitted because the patients are usually received from other mental hospitals. All transfers in the case of Rockland State Hospital are likewise excluded. In these hospitals, drawing from the metropolitan area of New York City, there were 81,659 admissions in the ten-year period of 1925 to 1935. Included in this number were thirty-nine cases of psychoses due to carbon monoxide poisoning. (An additional group of four cases, in which poisoning occurred either before or after the ten-year period, is not included in these tabulations concerning the incidence of sequelae.) The ratio of carbon monoxide psychoses to all other psychoses gives the incidence percentage of 0.05 per cent, or roughly one carbon monoxide case to 2,000 other psychoses.

The incidence of sequelae of carbon monoxide poisoning in relation to the total number of acute cases has been computed. During the same ten-year period approximately 21,000 poisonings occurred. Among these, thirty-nine cases of carbon monoxide sequelae appeared. From these facts it appears that one case in 500 acute exposures later showed nervous or mental symptoms. One third of the 21,000 patients could not be resuscitated. Such a low incidence of sequelae and such a high incidence of fatal cases indicate that persons are apt to succumb to the acute poisoning or recover completely.

CLINICAL CHARACTERISTICS OF THE NERVOUS AND MENTAL SEQUELAE FOLLOWING CARBON MONOXIDE ASPHYXIA

The entire forty-three cases of nervous and mental sequelae can be examined in order to draw a composite picture of the clinical syndrome. The symptoms are those that have followed acute carbon monoxide poisoning after the usual transient effects have disappeared. This complex is entirely different from so-called chronic carbon monoxide poisoning caused by the inhalation of a low percentage of gas over a prolonged period of time. During this investigation no cases of nervous or mental sequelae were found to follow such "chronic" and mild exposure. All the patients in our series were affected sufficiently to require admission to mental hospitals.

Age of Patients.—The average age of the forty-three patients was 53 years. The youngest was 20 and the oldest 83. The eleven patients dying within two years following poisoning were on an average 61 years of age. The average age of those surviving a two-year period was 50 years. Complications such as bronchopneumonia occur more frequently in the older group.

Sex of Patients.—Of the total of forty-three cases, twenty-seven were men and sixteen were women.

Nationality of Patients.—Among these patients there were eleven Americans, seven Irish, five Germans, five Jews, two Austrians, two Italians, two Bohemians, two Negroes, two Chinese, and one Norwegian, one Finlander, one Greek, one Dane and one Swede.

Past History.—Of the forty-three patients, nine were alcoholic, while eleven indulged in alcohol moderately. Twenty-two were total abstainers. No information was available with regard to one patient. Acute alcoholism, of course, was often the direct cause of the overwhelming exposure of the patient at the time of the acute poisoning. Otherwise, alcohol played no contributory part in after-effects of carbon monoxide asphyxia. In other regards the past histories of the patients were not enlightening.

The Degree of Acute Poisoning Necessary to Cause Sequelae.—It is now generally agreed that carbon monoxide is rapidly expired from the body as soon as the person is removed from the poisonous atmosphere. The assumption is fair that damage to body tissues which can produce any after-effects occurs during the period of acute asphyxia. Irreversible changes must be produced during this period. All the patients in this series were unconscious when discovered. By itself, this is strong evidence that a deep intoxication precedes any after-effects. Often the poisoning occurred under the most unfavorable situations, such as suicidal attempts, alcoholic intoxication, and in sleep. These situations favor deep intoxication with carbon monoxide gas. The impression that a period of unconsciousness from a large dose of carbon monoxide gas characterizes the acute poisoning in all instances in which after-effects are sufficiently serious to bring the patient to a mental hospital is substantiated by remarks appearing on the hospital records, such as "unconscious

TABLE 2.—*Total Admissions in Ten Year Period in Mental Hospitals Serving New York Metropolitan Area, Including Psychoses Due to Carbon Monoxide Intoxication*

	State Hospitals							
Fiscal Year	Manhattan	Brooklyn	Hudson River	Central Islip	Kings Park	Rockland	Total	Carbon Monoxide Cases
1925	2,529	1,043	717	1,321	1,221	.....	6,831	2
1926	2,221	1,274	793	1,324	1,098	.....	6,710	1
1927	2,363	1,406	734	1,667	1,119	.....	7,289	4
1928	2,317	1,529	788	2,020	1,277	.....	7,931	1
1929	2,297	1,523	819	2,008	1,107	.....	7,754	1
1930	2,317	1,629	841	2,017	1,302	.....	8,106	8
1931	2,223	1,606	907	2,170	1,150	1*	8,057	7
1932	2,358	1,543	829	2,027	1,290	795*	8,842	4
1933	2,004	1,917	721	2,261	1,663	1,457*	10,023	4
1934	2,531	1,895	634	1,933	1,551	1,572*	10,116	7
Total	23,160	15,365	7,783	18,748	12,778	3,825	81,659	39

* Exclusive of transfers.

two days," "unconscious four days," "for several days lapsed off into semiconsciousness," and "resuscitated after eight hours."

The records of twenty-two of the forty-three patients who were resuscitated by the emergency crews of the gas companies serving metropolitan New York have been available to us and provide reliable information concerning the episode of acute poisoning.

Every one of the twenty-two patients was unconscious when first discovered and fourteen were in the deepest coma from the gas inhaled. The experienced observer would realize that these fourteen patients were in the most desperate condition and a few more minutes' exposure would have caused a fatal issue. They presented the following "in extremis" condition: complete unconsciousness, with a slow or irregular pulse and with a slow gasping respiratory rate. Often artificial respiration, in addition to oxygen-carbon dioxide inhalation, had to be resorted to during the treatment. The eight other cases showed a clinical picture of less severe acute carbon monoxide poisoning. In these the patients were unconscious when discovered, but the other signs were less disturbing. The pulse was moderately elevated and the respirations were about the normal rate.

Further information concerning the degree of acute poisoning necessary to cause after-effects can be secured by examining the length of time required by the emergency squads to establish sustained normal breathing

in the patients. By simply adding up the number of minutes of prone pressure, inhalatory treatment, or both, in each case, the figure of sixty-six minutes per patient in our series was secured. On the individual cases the time varied from a low of twenty-five minutes to a high of 195 minutes. These figures may be compared with the time of resuscitation in fifty cases treated by the emergency crews picked at random over the last five years. This average was thirty-four minutes. The longest treatment in these cases was 145 minutes and the least was twenty minutes.

Onset of Sequelae of Carbon Monoxide Poisoning.—The great majority of patients who are brought into hospitals after emergency resuscitation are entirely conscious. They experience several days of unpleasant but entirely transient effects. These symptoms consist of headache, dizziness and, perhaps, gastric distress with nausea. It has been quite conclusively demonstrated by Forbes, Cobb and Fremont-Smith [4] that these symptoms are due to cerebral edema induced by the poisoning. Such cases show no serious after-effects.

In our forty-three cases there is reliable information concerning the first week following the acute poisoning in all but eleven.

The exact time of the onset of symptoms of nervous and mental sequelae in carbon monoxide poisoning is variable. Two classes are seen: (1) those cases with the onset of symptoms within one week and (2) those cases with the onset of symptoms after a clear period of from one to three weeks. In the total of forty-three patients, nineteen suffered after-effects within the first week while thirteen experienced a clear period. In eleven instances insufficient data were available for analysis.

The cases that showed symptoms within the first week usually had no clear period. The group of nineteen included most of the patients so severely poisoned that their unconsciousness lasted several days. On recovering from the comatose state they passed immediately into a confused and disoriented state. Furthermore, neurologic signs were occasionally detectable.

Case 1 illustrates the immediate onset of after-effects of carbon monoxide poisoning following the acute episode.

A week or more of mental clarity following acute poisoning is an interesting phenomenon. This group of thirteen cases may be sharply differentiated from the group just discussed. The patients recovered completely after the acute episode. Many were discharged from the hospital and some even returned to their jobs. There was an abrupt onset of secondary symptoms on about the tenth day. Cases 2 and 3 are illustrative. The longest period of clarity was nineteen days. In two instances there was a sudden onset of symptoms suggesting intracranial accident; in both there was collapse with focal muscular paralysis. These accidents were serious and caused permanent paralysis or death.

THE TYPICAL PSYCHOSIS FOLLOWING CARBON MONOXIDE POISONING

A psychosis, most usually temporary in character, was the most common manifestation of the after-effects of carbon monoxide poisoning. In every instance the psychosis was quite similar. It was marked by confusion and bewilderment, combined with a loss of memory. The events occurring at the time of the accident were forgotten. Such symptoms as hallucinations and delusions were conspicuously absent. At times there was overactivity of short duration. The entire psychosis was brief. Improvement was usually noted by three months after the accident. Indeed, improvement was observed in some cases within a few weeks. In some, improvement was not seen for six or eight months. It is quite evident that the psychosis assumed its most severe form at the onset. The patient rapidly sank to the level of a vegetative existence, incontinent, untidy, unresponsive and unable to carry out any voluntary acts. From this state he often improved within a few weeks, so that he was walking about the ward. Disorientation and confusion would disappear before the memory defects. The latter were the last to clear, and sometimes months or years passed before the events immediately surrounding the accident could be recalled. Within a year most of the patients were sufficiently improved so that they could be paroled home.

Amnesia in some form was the most regular feature of the psychosis following carbon monoxide poisoning. Usually, as already noted, it consisted of memory defects.

One case showed an auditory aphasia. In the literature deafness is often mentioned as a sequel of carbon monoxide poisoning. In this instance the deafness was actually an auditory aphasia and not a primary nerve injury. There was also an accompanying motor aphasia that cleared in a week's time.

Neurologic Changes in Carbon Monoxide Poisoning.—The forty-three cases showed a fairly high incidence of neurologic changes in varying degrees of severity. The least apparent lesion—if it deserves the title—was marked by increased reflexes alone. From these minimal symptoms the cases graded upward to well advanced parkinsonism, with increased reflexes, slow movement, lack of coordination, fixed facies and scanning speech. We have encountered occasional hemiplegias and paraplegias.

In addition to these changes denoting muscular hypertonia, and indicating basal ganglion lesions, muscle atrophies and skin hyperesthesias were found.

The neurologic lesions appeared early in the course of the disease, along with mental manifestations. The neurologic picture showed steady improvement, leading often to complete recovery from within a few days to several years, depending on the degree of the lesions. Usually the cases showing only increased reflexes cleared within a few weeks. Six of the forty-three cases, however, showed permanent neurologic residua. In five instances these permanent effects consisted in parkinsonism and in one instance simply increased reflexes. Ten patients died early in the course of the disease, because of a combination of the gas poisoning and senility resulting in terminal bronchopneumonia. It is difficult to analyze the degree of neurologic damage in these patients because of the comatose, moribund condition. Definite neurologic signs were demonstrated in three of these cases.

Omitting patients who died, twenty-three showed neurologic signs, six of whom did not fully recover and seventeen of whom recovered completely (table 3). Case 4 illustrates marked neurologic lesions.

End Results in Carbon Monoxide Poisoning.—For clarity the forty-three patients are divided into "dead," "recovered" and "permanently affected." The two year period following the individual's exposure to carbon monoxide is arbitrarily designated as the period beyond which signs and symptoms are considered permanent. Of the forty-three patients, twenty-three recovered,

4. Forbes, H. S.; Cobb, Stanley, and Fremont-Smith, Frank: Cerebral Edema and Headache Following Carbon Monoxide Asphyxia, Arch. Neurol. & Psychiat. **2**: 264 (March) 1924.

eleven died, and nine suffered permanent effects. In evaluating the final results in these cases it has been necessary to rely entirely on hospital records. The criteria of complete recovery has been the hospital note of discharged as "recovered." In each case there was a year's follow up, and notes made by physicians from the hospital gave a good indication of the adjustment that the patient made after leaving the hospital.

Eleven of the patients died within two years of the date of the acute poisoning. A glance at the first ten in table 4 shows that they all died within three months of the acute poisoning. In all but two of these death

TABLE 3.—*Incidence and Type of Neurologic Lesions Occurring Following Carbon Monoxide Poisoning*

1. Number of cases showing muscular hypertonia (increased reflexes, perhaps clonus and positive Babinski) (1 shows signs after 2 yrs.)	9
2. Number of cases showing hypertonia and some degree of peripheral neuritis (2 permanently)	5
3. Number of cases showing parkinsonism (3 permanently)	4
4. Number of cases showing parkinsonism and some degree of peripheral neuritis	1
5. Number of cases showing only peripheral neuritis	4
6. Number of cases showing no neurologic signs	10
7. Number of patients dying before complete neurologic examination	10
Total	43

was attributed to bronchopneumonia or senility. Two of the patients, 2 and 6 in the table, died from primary brain tissue destruction.

The last and eleventh case on the list was very unusual. A man, aged 39, approximately six months after carbon monoxide poisoning presented little data as to his health, other than that he had been in a private sanatorium. On admission to the state mental hospital he was found to have marked neurologic signs as well as a psychosis. He was completely incapacitated. A blood examination showed a picture of primary anemia. In spite of temporary improvement on liver therapy he continued to be very weak and died sixteen months after the poisoning.

Twenty-three of the cases were paroled or discharged without, apparently, any permanent scars of poisoning. Of the total forty-three cases, nine fell into the group of permanent sequelae. Five of these nine patients suffered from neurologic complications. This consisted of a modified parkinsonism, with stiffness of extremities due to muscular hypertonia. Three of the patients suffered from psychoses, one of which was an auditory aphasia. The ninth case showed both neurologic and mental lesions.

Prognosis in Carbon Monoxide Poisoning.—This investigation covering the after-effects in 21,000 cases of acute carbon monoxide poisoning leads one to believe that the prognosis as to sequelae is not alarming. We found only forty-three patients who suffered enough after-effects to be admitted to mental institutions.

Furthermore, if a patient does fall into the small group of cases that show sequelae, he still stands a good chance of complete recovery within two years. It is usual that nervous tissue damage is maximum at the time of the destruction. From then on regeneration takes place, unless the pathologic process continues. Hence, in cases of carbon monoxide nervous and mental disabilities, hope of improvement should be entertained. After a two year period the condition is most likely to be static.

GENERAL SUMMARY

The New York metropolitan area was chosen for a study of nervous and mental sequelae of carbon monoxide poisoning. It is known that at least 21,143 acute exposures of all degree occurred there in a ten year period. For the same period a survey of the state mental institutions serving the metropolitan area of New York City showed thirty-nine certain cases of sequelae of carbon monoxide. Such patients formed 0.05 per cent of the total admissions. Serious mental or nervous sequelae of carbon monoxide poisoning are thus infrequent in relation either to other nervous and mental diseases or to the number of acute exposures.

Study of case records revealed that when nervous or mental damage occurred the acute carbon monoxide intoxication was extreme. Complete unconsciousness was invariable and the most active resuscitative measures were necessary. None of these cases followed so-called chronic carbon monoxide exposure over a long period of time.

A clear period of from seven to twenty days preceded the onset of symptoms in one third of the cases. In the remainder of the cases the symptoms started immediately following the poisoning.

Mental sequelae consisted of a confusion psychosis, with disorientation, lack of judgment and amnesia. Motor overactivity and aphasia were much less common. Hallucinations, delusions or convulsions played no conspicuous part.

Nervous sequelae consisted of signs varying from slightly increased deep reflexes to well advanced parkinsonism. Sensory disturbances, such as skin anesthesia and peripheral motor neuritides, were also encountered. These cases all showed improvement, but the final result depended on the degree of initial damage.

In the total group of forty-three cases, twenty-three patients recovered completely, nine suffered permanent nervous or mental sequelae and eleven died.

ABSTRACT OF CASES

CASE 1.—*Showing immediate onset of sequelae.* A man, aged 69, single, a German waiter, with no history of alcohol or drugs, had had no occupation for three years because of general weakness and senility.

TABLE 4.—*Analysis of Cause of Death in All Patients Dying Within Two Years of the Acute Poisoning*

Patient	Age	Duration of Illness, Days	Cause of Death
1	40	35	"Bronchopneumonia"
2	56	32	"Lapsed into coma"
3	76	70	"Gradually sank"
4	69	42	"Pneumonia; cardiac decompensation"
5	70	72	"Death followed hip fracture"
6	62	59	"Convulsions"
7	83	71	No comment
8	55	41	"Bronchopneumonia"
9	45	33	"Bronchopneumonia"
10	83	43	"Bronchopneumonia"
11	39	697	"Pernicious anemia"

The patient is believed to have attempted suicide because of "pain." He was found in a gas filled room unconscious, with a pulse of 100, and respiration rate of 12 per minute. He was revived after considerable effort. It was necessary to institute artificial respiration in addition to thirty minutes of inhalator treatment (oxygen 95 per cent and carbon dioxide 5 per cent for twenty minutes; 90 per cent oxygen and 10 per cent carbon dioxide for ten minutes). He was removed to Bellevue Hospital, where he was immediately seen to be confused, disoriented and mentally incapacitated.

On the nineteenth day he was admitted to the Manhattan State Hospital from Bellevue Hospital. On admission the patient was senile, emaciated and bedridden. He was mentally confused, with no judgment. The blood pressure was 115 systolic, 75 diastolic. The heart sounds were noted as faint. The reflexes were normal. Urinalysis showed a specific gravity of 1.017, albumin 1 plus, and an occasional red blood cell in the sediment. The Wassermann reaction was negative.

On the forty-second day the patient died of bronchopneumonia and cardiac decompensation.

The diagnosis was psychosis due to drugs or other exogenous toxins (illuminating gas) and confusion.

CASE 2.—*Showing onset of symptoms after a "clear" period.* A man, aged 37, Irish, separated from his wife, had a history of habitual use of alcohol; otherwise his past history was irrelevant.

While intoxicated the patient and his brother were overcome by escaping gas. When discovered the patient was unconscious, pulse irregular and the respiration rate 6 per minute. Oxygen 95 per cent and carbon dioxide 5 per cent were administered by an inhalator for one hour. He was removed to City Island Hospital, where he is reported to have been unconscious for two days. For the remainder of the first week he apparently had a "clear" period and seemed to be entirely recovered.

On the seventh day the patient began to "act queerly." He was transferred to Bellevue Hospital. Mentally he was unresponsive. A right positive Babinski sign was noted.

On the forty-second day he was admitted to the Manhattan State Hospital from Bellevue Hospital. On admission he was comatose. Only a partial physical examination was carried out. Mentally he was dull, apathetic and completely disoriented.

On the eighty-fourth day his condition was improved. He was out of bed, wandering about the ward.

On the 133d day he was almost fully recovered. Memory and orientation were good.

On the 166th day he left the hospital on parole.

On the 265th day he was "as well as ever."

On the 584th day he had a complete discharge from the hospital as recovered.

The diagnosis was psychosis due to drugs or other exogenous toxins (illuminating gas) and confusion.

CASE 3.—*Showing a "clear" period.* A woman, aged 51, a Danish housewife, did not have a contributory past history. She was found unconscious from illuminating gas exposure and removed to the hospital, where she remained unconscious for from forty to fifty hours. After five days she was discharged from the hospital, apparently entirely recovered from the gas poisoning, except for a little weakness. In two weeks, however, her gait became unsteady and her mental state changed from clarity to confusion and bewilderment. She was admitted to another hospital for observation. There it was found that she was mentally confused.

On the fifty-second day she was transferred to the Hudson River State Hospital. On physical examination on admission no remarkable changes were noted except on the neurologic side. In this respect there was a noticeable blank, expressionless appearance to the face. The knee jerks were increased. There was a coarse tremor of the hands. Skin sensitivity to touch, cold and heat was diminished over the entire body. Mentally the patient was abnormal. She was anxious and disoriented. There were no hallucinations or delusions. Urinalysis showed a specific gravity of 1.021, a faint trace of albumin and no sugar, and the sediment was clear. The Wassermann reaction was negative.

On the fifty-ninth day the progress note said that the patient had cleared mentally so that she was well oriented and more interested. She complained of vague pains over the body.

On the ninety-fourth day the progress note said that the patient felt that she was thinking more easily. She was mentally clear on examination. On the 116th day all neurologic signs, including the diminished skin sensitivity, had cleared.

On the 123d day the patient was paroled.

On the 266th day the patient reported that she was feeling better every day. She was going to movies and the like.

On the 490th day she got her permanent discharge papers.

The diagnosis was psychosis due to drugs or exogenous toxins (illuminating gas) and confusion.

CASE 4.—*Showing marked neurologic signs with permanent disability.* A woman, aged 47, a German housewife, with two children, had no history of addiction to drugs or alcohol. She had had menopausal symptoms for one year.

The patient attempted suicide by slashing her wrists and exposing herself to illuminating gas in her apartment. She was discovered unconscious, with a pulse of 115, respiration rate 6 per minute, gasping in character. Her condition was poor. Prone pressure artificial respiration was administered for five minutes, with oxygen 95 per cent and carbon dioxide 5 per cent. The inhalator was continued for thirty minutes. The patient was then removed to Morrisania Hospital in a semicomatose condition. On the day following the poisoning she was removed to Bellevue Hospital, mentally confused and disoriented. Her physical condition seemed good.

On the twelfth day she was admitted to the Manhattan State Hospital from Bellevue Hospital. Mentally the patient was restive, at times excited, but generally apathetic and disinterested. She was completely disoriented, with judgment and insight lacking.

On the fiftieth day a note was made of the immobile facies and somewhat rigid gait, with propulsion.

On the seventy-fifth day, parkinsonism continued.

On the 101st day the patient continued to be uninterested mentally, with poor memory. She was confused, although she was somewhat more oriented, knowing the time and the place. Parkinsonian symptoms continued.

On the 135th day there was no change.

On the 142d day she was paroled to the care of relatives at home.

On the 318th day she mentally had no insight. The neurologic signs were masklike facies and right-sided intentional tremor; the knee jerk reflex was increased on the right and diminished on the left. There was loss of associated movements. The right arm was flexed and held closely pressed against the trunk.

On the 511th day she was discharged, much improved. She appears, however, to have permanent neurologic signs of parkinsonism.

The diagnosis was psychosis due to drugs and other exogenous toxins (illuminating gas) and confusion.

55 Shattuck Street.

SCABIES AMONG THE WELL-TO-DO

SOME PRINCIPLES ILLUSTRATED BY THE ÉLITE

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My office file contains fifty-three cases of scabies among the better feathered, the silver spooned and the intellectual and professional elect. Of the fifty-three, thirty-seven had seen one or more physicians without relief. Eight had seen "grade A" dermatologists. In five of the eight there had been diagnostic errors. To these I myself contributed one. A total of ten correct diagnoses had been made by forty-nine physicians who saw thirty-seven of the patients. To one of them his family physician made the remark "I would have called it scabies myself if it hadn't been I thought that was a disease no nice people ever had." From twenty-one known sources, sixty-one recognized and an unknown number of unrecognized infestations resulted. Though the subject may seem a bit *infra dig.* and on a scale of morbidity rather picayune in a time of war and rumors of war, there is probably some justification for an analysis and commentary on what has been justly designated as at once the easiest and the most difficult diagnosis in dermatology. Scabies is a disease of herding, promiscuity and travel, of family, school and vacation life. It is thus, of course, like the louse infestation, a plague of armies, tenements and slums. It may with equal force invade a pedigreed school, Camp Wawa Wawa, or the baronial castle on the hill. It may appear in the rôle of venereal disease capable of being transmitted by bedding with the *fille de joie* and is too often at the site of the penile burrow, the doorman to Spirochaeta pallida. The late war, the current human migrations south in winter and north

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in summer, the fluidity of present-day populations, all contribute to making scabies an ever present differential consideration, wholly without social boundaries, the possible explanation of the itches of the tycoon, the socialite and the university professor equally with the mechanic's daughter on relief.

Reviewing the outstanding facts of the group of cases thus introduced, it appears that persons of wealth and culture, intellectuals, business and professional men and women and adult members of their families made up two thirds, college and finishing school students, teachers, secretaries, clerks and young children the remainder of my series. A fourth of the cases were recognized within a month, two thirds within three months; two had run more than a year. A case not here included was an offshoot, at a thousand miles distance and a year's standing, of an epidemic involving an entire Florida town, in which the situation had been generally explained as being the result of food poisoning from a carload of spoiled milk chocolate. The victim I encountered was an elderly man, the proprietor of a pair of season hotels of fair standing at opposite ends of the country. I examined him, all unsuspecting, following his frantic appeal in my bedroom at the summer cottage I was visiting. Fortunately nothing happened, though his clothing was scattered over my bed. Of those infestations in this series whose source could be traced, seventeen occurred within the family, ten were incident to travel, six occurred as visitor or visited, two were sexual contacts. Hotels figured three times, one of them a princely hostelry; a swank private hunting lodge was incriminated once, steamers twice, vacations four times. The housekeeper of the hunting lodge had entertained a niece, who had slept for a time in one of the twin beds in the master bedroom. The mistress acquired the infestation, was given glycerophosphates for "nerves" by her internist, told it was gallbladder and change of life by her friends, received calamine lotion by telephone order from me (I plead that I had never seen her, she would not come in, I could not disregard the request, I'll never do it again!) and was thought to have dyshidrosis by another medical adviser. Her husband was found to have a full-blown infestation, classic as to lesions, but whose subjective symptoms he had been too much preoccupied to take seriously. The pet steamship story is of a sportsman visiting in Europe who was informed by his dermatologist abroad that he was suffering from a recurrence of his secondary syphilis (possibly because of his conspicuous urticarial sensitization reaction and the infiltration of the scratch papules). Instead of beginning the recommended course of bismuth he flew for the then record-holding transatlantic liner and burst wildly into my office on the sixth day, a veritable visiting card for the acarus of scabies, which must have distributed his and its compliments broadcast en route. There had been no recurrence of his syphilis, and two weeks accomplished his cure.

THE DIAGNOSIS OF SCABIES

In understanding why the diagnosis of scabies fails, it is clear from this series that the following items are of importance: (1) a low index of suspicion—partly a misuse of social criteria; (2) unfamiliarity with the typical scabetic symptom syndrome; (3) failure to see or recognize the burrow without the use of the lens; (4) failure to distinguish between scabies and its complications and sequelae—i. e., to recognize the underlying trouble; (5) failure to hunt up the contacts for confirmation or illumination; (6) misinterpretation or mishandling of a therapeutic test.

Of thirty-three erroneous diagnoses inferred from course or treatment or known to have been made before the patient's first visit to me, the commonest (and in equal proportions) were "nerves" (the scabetic neurosis), "hives" (the postscabetic or sensitization urticarial reaction), "dermatitis" (scratch plus pyogenic infection) and "physician's quandary," indicated by nondescript internal treatment, including diet, laxatives, antacids (for "acidity") and so on. The full list brings out in addition, as serious contestants, lichen urticatus (chronic papular urticaria of adults), dermatophytosis of the hands with dermatophytid of the body, dermatitis venenata (ivy, primrose), impetigo and pyogenic eczema, and furunculosis. The body and pubic louse infestations must also be included. On these various possibilities the best diagnostic acumen may go astray.

When the diagnosis was finally made, it was found to rest on four observations, in order of importance as follows:

1. The burrow, especially on the hands and on the penis.
2. Nocturnal itching.
3. Distribution of the eruption.
4. The identified contact or source.

One sign alone made the diagnosis four times, two signs, twenty-one times, three signs nine times, four and five signs six times each; ten cases were rated as "classic," with "everything there" including recognized sequelae.

In order to identify scabies in a doubtful case it is necessary to strip the patient completely. One may find the diagnostic burrow on the instep, especially in infants. Only by having the patient undress completely can one study the geography of the situation and recognize the "map" or distribution of scabies. One must expect of course to see scratch, and in complicated or long-standing cases it may be general. But there is nearly always a concentration of the process, whether scratch or complicating urticarial, pyogenic or eczematoid eruption, about the fingerwebs and wrists, the axillary folds, the nipples (sometimes the chief or only site in women), the belt line and the genitalia. At least two and usually three or more of these regions are involved. As in identifying a faint macular syphilid, one should not stand too close, for distance tends to bring the distribution of the eruption into focus, so to speak. In persons who resist the infestation or whose skins show little general reaction to it, a concentration of urticarial and scratch papules on the buttocks along the anal cleft may arouse suspicion. Nothing is more suggestive of scabies than irregularly shaped dry or scratched papules on the shaft, foreskin and glans of the penis, or the anterior surface of the scrotum, nor can this suspicion be laid to rest by finding the patient to have a positive Wassermann reaction.

The preliminary survey for distribution accomplished, the next step is a search for burrows. Select a thin-skinned region and with a biconvex lens of two diameters or a loupe of up to five diameters magnification inspect the papules for doublets and their connecting burrow, the zigzagness of which varies with their distance apart. At one minuscule mound the Acarus enters, and in its top usually is found the yellowish brown ring or pinhead dung heap, quite different when intact from the darker red clot or crust of a scratch papule. At the point finally reached by the adult

female or just short of it the second papule, in reality usually a deep vesicle with a slight pearly translucence, develops. The dung heap is smaller, the vesicular dugout larger. The tunnel in which the eggs are laid joins the two with a directness and purposefulness that perhaps varies with the temperament of the lady and the toughness of the skin. I have seen mild zigzags an inch long on the thin skin of the inner side of the upper arm, and dumb-bell-like configurations with a 2 mm. straight central bar in the tough skin of the palm. In the more recent burrows, scratch mutilation is less likely and there is more urticarial edema, elevating both papules and burrow. In the older lesions, untraumatized, the dung heap papule and burrow are almost flat and recognized chiefly by the pigmented excrement, while the dugout retains its edema and translucence for a longer time.

In general it is an unnecessary refinement to attempt to dig out the squatter tenant of the establishment or to shave off tissue to demonstrate the eggs microscopically, though both are impressive classroom procedures. To rip up the vesicopapule and the skin just beyond it [1] with a common pin and examine the clinging white speck under low power may occasionally help in a doubtful case but I have not found it necessary in years. In his enthusiasm, the doctor should not show his find to the patient (see acarophobia).

It cannot, moreover, be too emphatically stated that the failure to use a lens hamstrings the diagnosis by papule and burrow hunting at the start. This, if I am not mistaken, is the chief source of failure in many seemingly typical cases. Stripped examination and lens search are essentials.

It is not wise to make diagnoses on one papule or on either a straight or a zigzag burrow-like streak, minus one or other of the pair, either dugout or dunghill, for scratch can produce deceptive variations. Whether one burrow with its twin papules can make a diagnosis depends on the experience of the diagnostician. In only four cases did I venture this. Certainly the burrow group is the only lesion on which a diagnosis *solo* may be ventured.

The itching of scabies is surprisingly consistent in its nocturnal character, at least early in the siege. Very late, when acarophobia, sulfur dermatitis, postscabetic urticaria and bath pruritus have all complicated the situation, it is more difficult to recognize, but most patients can, even after four months of infestation, testify to the storm of itching that accompanies supposedly the nocturnal parade of the mites in search or excavation of newer and better, or of independent, habitations. Occasional patients do not itch at all, probably because the threshold of itch sensitiveness is like that of pain and varies greatly in individuals. The patient may complain of itching on undressing, or later when becoming warm in bed, the latter, in my observation, much the more distinctive.

Finding a confirmatory human source or contact with scabies in a given case assumes the diagnostic importance still attached by the French to the ritual of confrontation in the diagnosis of chancroid and syphilis. In a doubtful case it is diagnostically important to find a more clear-cut and preferably untreated case from the same source. Therapeutically it is important to ferret out contacts because, through them, untreated, comes relapse. Usually the family provides the best field for such a search, and infants particularly because of their thin skins and ill directed scratch activities furnish the best fields for the burrow hunt. Distribution in infants, however, is apt to be atypical, because every part of the body including the face and scalp may be affected. Very choice burrows may be found on the sole of the infant foot. A history or an outbreak of impetigo among playmates or in a school room may mask an underlying scabies that will keep going a whole winter, through failure to inspect contacts by a school physician. Comment on the therapeutic test is included under treatment.

1. Maynard, M. T. R.: Acarus Scabies, California & West. Med. 37: 194 (Sept.) 1932.

THE COMPLICATIONS OF SCABIES

The infection with syphilis of the scabetic patient who has genital lesions, an occurrence of unknown frequency but by no means rare, should always be borne in mind, especially when there have been repeated sexual exposures. Nine burrows transformed into small chancres on a high-priced tobacco buyer's penis by no means touches the limit of this possibility, and darkfield examination of all suspiciously indurated lesions is in order when the circumstances suggest the need for it.

Of all other complications, the following appeared in thirty-three of my fifty-three patients, notwithstanding their good hygiene and better than average intelligence: The sensitization phenomenon postscabetic urticaria developed in nine. Whether due to sensitization to the proteins of the decomposing acari or to their excreta or toxins, there can be no escaping the reality of this disturbance, which begins to appear, at a guess, about a month or six weeks after infestation and is present both during the infestation and for days, weeks or even months after recognizable scabetic lesions have disappeared. The appearance of miliary hives on the otherwise unaffected skin, the urticarial edema of the scabetic papule and the scratch lesion, and a certain degree of dermographism all serve to confuse the examiner and to lead even experts to diagnoses of lichen urticatus and food rashes, from which only a painstaking search for burrows and the other distinctive features of a scabetic infestation could save them. The urticarial response is heightened by the nervous reaction to the tormenting itching and loss of sleep, and to the state of mind incident on discovery of the trouble (parasitophobia).

Parasitophobia or acarophobia (seven cases) is a particularly distressing complication of a scabetic infestation, for which physicians themselves may too easily be responsible. The acarophobe can oftenest be identified by his odor, his beset or frantic eye, and his gingerly gestures. In fact, the strong odor of sulfur is prima facie evidence either of a phobic misapplication or a badly managed sulfur treatment. The recognition of the dry, chapped or crackly, dusky pink sulfur dermatitis, about the folds especially, identifies the trouble. The acarophobe is not necessarily a neurotic, yet his temporary conviction that he is "buggy" may lead to successive unsuccessful "cures" for a nonexistent or previously cured scabies that establishes a vicious mental circle and a round of dermatitic manifestations, lichenification, bath pruritus and dermographic urticaria, which assumes the proportions of nervous breakdown before the situation is recognized. One grandmother spent $600 alone in steam and sulfur fumigations of her home, all quite unnecessary, as the result of misdiagnoses and ill considered statements attributed to her physicians, and was finally with diffi-

culty kept out of an asylum herself. In this case the trouble was a senile (*sive* soap) pruritus in the first place. A priest, reeking with successive sulfurous ablutions, nearly lost his charge before his plight was recognized. The acarophobic neurosis may assume symbolic or fixational characteristics, the focusing point for personal conflicts and problems, and become unbudgeable without prolonged psychiatric attention.

Every precaution should therefore be taken to set the person to whom a diagnosis of parasitic infestation must be communicated on the right track at the start, by a tactful but authoritative delivery, an absolute assurance of cure, a caution against elements of failure in the treatment technic, which may result in itchy complications mistaken for relapses, and in relapses themselves. Once the way is skilfully paved, only the irresistibly predisposed person develops a significant acarophobia. In highly unstable individuals one is tempted to withhold the diagnosis, but this at once runs counter to the necessary instructions for treating the clothing and bedding; and the well meant reticence only creates distrust and defeats itself.

Equal in importance with urticaria (nine cases) is the secondary dermatitis, which is to some extent the sequel of treatment in sensitive persons and especially in those who repeatedly "cure" with sulfur and other irritant ointments, either with or without explicit direction from their physicians. Here again physicians are remiss in the failure to give explicit warnings and instruction and to refuse prescription refills without reexamination to patients whom they treat for scabies. No prescription containing a skin irritant as universally trouble making as sulfur should be issued without restriction. There is, moreover, a very distinct idiosyncratic reaction to sulfur, and I have seen the wife of a tough-skinned man develop a dermatitis from the sulfur he had used on himself to cure an infestation under my supervision before he returned to share their room, and after he had completed his "cure," with its attendant baths. The effort to cure scabies is a constant compromise between the destruction of the acarus and the excitation of irritative dermatitis, which accounts in part for the popularity of the shorter, less irritative "one day" treatment methods.[2]

A fourth important complication is what I believe amounts almost to a "sensitization" to pyogenic organisms, resulting in bouts of impetiginous dermatitis, sometimes highly refractory to treatment. These may or may not have an "allergic" factor, as in the scabetic urticaria. They seem also to be particularly frequent in those who are free users of carbohydrate, especially sugar, and of alcohol.

The bath complications (bath itch, bath dermatitis) are confused with the sulfur pictures and usually occur in pure form, so to speak, only in ichthyotic persons, whose congenitally dry, greaseless skins resist irritants less effectively than do the seborrheic, who may actually profit by a sulfurous rubdown or two. Liberal greasing and the grease-based preparations are the best antidote for such difficulties, and preferable thus to the solutions which leave a thin film of sulfur on a drying skin.

It is possible for the clearing up of an extensive scabies to leave an uncovered dermatologic picture ranging from a secondary syphilid to psoriasis or dermatitis herpetiformis. Into this last-mentioned fashionable catch basket of dermatologic classification more than one parasitic infestation would be thrown, were Duhring's disease more familiar to practitioners at large.

2. With the recently Council accepted pyrethrum ointment (pyrethrum is likewise at times a potent allergen), this series offers no experience, for it antedates the preparation.

TREATMENT OF SCABIES

The treatment of the patients under consideration here was by a uniform and rather old-fashioned method, which I must confess has not been displaced in my estimation by the current scabeticides and one-day cures for which a hurry-up civilization calls. The previous treatment for scabies of the patients whom I observed, and my own failures, brought out some points for emphasis in dealing with this infestation. First, early diagnosis of the scabies greatly diminishes the complications, simplifies the methods of treatment required and improves the results. Cases of less than a month's duration almost never relapsed and were cured in one thirty-six hour course. One of the difficulties in early diagnosis occasionally encountered is a lag in the symptoms of insensitive persons, or persons seemingly resistant, which amounted apparently to as much as a month from the known time of exposure. In fact there would seem almost to be such a thing as an asymptomatic carrier, the fathers of two family groups in my series making no complaints though presenting typical lesions. The relatively late development or complete absence of sensitization urticaria, with its increasing itchiness, may explain the occasional insignificance of itching at the outset, and in some cases of even prolonged infestation of certain insensitive individuals. Because of this carrier possibility, it is well to call in for examination entire families rather than merely the sleeping partner.

Making the perhaps rather large assumption that patients who do not return for observation on the seventh day, as requested, are cured, data were had on twelve relapsing patients who had one or more recurrences, in one case repeatedly for as long as a year. A second reinfestation of an entire family of good social position and good hygiene took place at the end of four years of freedom. Examination of the relapses in relation to complications showed that thirty-two cases might have been regarded as recurrent by the inexperienced and subjected, as some of them were, to repeated and undesirable treatment. The twelve bona fide relapses clearly brought out two causes: (1) inadequate instruction of the patient relative to disinfection of clothing and bedding, and (2) an infected but unexamined and untreated contact, most often husband or wife.

I believe it may safely be said that the detail of instructions for personal disinfection, the order not to refill prescriptions without reexamination, follow up to be sure the individual infestation is terminated, precise directions regarding sterilization of fomites, and the detection and effective treatment of all reachable contacts are more important than any individual prescription formula in dealing with scabies. To prescribe a proprietary or give a prescription without all these accompaniments is a direct invitation to complications and relapse.

So far as preparations go, from the tub of Peru balsam and the long handled brush, to the Danish one-day cure, almost anything containing Peru balsam and volatile sulfides, or either sulfur or betanaphthol in a concentration of not less than 10 per cent for the adult, will be effective. The use of an ointment base as a defense against excessive action of the drug and a protection against bath pruritus seems to me desirable,

and repeated application with alternate scrubbings seems to me to insure a result with a single course. The directions that are issued to my patients are given them in writing as follows:

ANTISCABETIC DIRECTIONS

First Night: Bathe with hot water and soap, soaking well and scrubbing all burrows and pimples open with brush. Rub in ointment over whole body except face and scalp. Special attention to hands, arm pits, waist, nipples, groin and genitals (external).

Next Morning: Rub ointment again, without bath. Wear same underwear.

Next Night: Rub ointment third time, without bath.

Second Morning: Bathe thoroughly, do not apply ointment, powder the body with borated talcum all over. Then put on fresh underwear. Have all bedding changed (sheets, pillow cases).

Send blankets and everyday suit to dry cleaner.
Send linen and underwear to laundry.
Return to the office one week from today.
Use no more ointment unless ordered.

Such particularity may seem to lean over backward, but with it only two relapses occurred in my treatment series, and one of these was due to my failure to detect the contact source at the outset.

A failure to cure with the first course must be rather carefully handled. A week is hardly enough time to determine relapse, so that a longer period may be allowed to pass before a second course is given. It is best to avoid a repetition within two weeks, but it is allowable in one week with tough-skinned or seborrheic patients. Relapse should always be the signal for a thorough inquiry as to the detail with which the regimen was followed, and vigorous reiteration of the procedure, with a renewed search for contact source. A second failure throws the diagnosis seriously into question and raises all the differential problems of urticaria and other complications, and nonscabetic conditions such as interdigital dermatophytosis and dermatophytid. The interdigital vesiculation of the "'phyte'-phytid" hand when slight may be confusing even to the expert, but it is impossible to identify doublets plus burrows in it on lens inspection.

A therapeutic test for scabies is a legitimate diagnostic resort after the case has been carefully weighed for ordinary diagnostic evidence. It is inexcusable to plaster every itch with sulfur, of course. The most striking evidence of the success of a therapeutic test is the immediate relief of the intolerable itching on the night of the very first application of the "cure." Failing this sign, treatment is hard to interpret in its objective results within two weeks, and the urticarial complications may by producing apparent "recurrence" seriously confuse the result. Moreover, many diffuse pruritic syndromes including dermatitis herpetiformis are much, though temporarily, relieved by not too much sulfur or betanaphthol. Even the expert will find himself occasionally unable to make a decision short of stopping all forms of treatment and inducing the patient to bring himself and his contacts in repeatedly for the detection of objective evidence.

The urticarial, pyogenic and eczematoid sensitization complications of scabies yield in my experience best to fractional doses of x-rays to the principally involved areas, plus autohemotherapy, and a sharp temporary reduction in carbohydrate and alcohol intake. So uniformly good have my results been that I now treat the patients thus as soon as the diagnosis is made and the complication recognized, coincidently with the prescription of the antiscabetic "cure." The cure of infestations with even rather pronounced complications can thus be brought within a seven to ten day period. Lacking these appurtenances, starch baths, olive oil and lime water lotions, or ammoniated mercury and boric acid ointments to the worst involved areas, with large doses of calcium salts by mouth, are more slowly effective. A weak ammoniated mercury ointment for two days and the substitution of styrax and betanaphthol for sulfur may be necessary in infants or children with severe impetiginous complications.

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THE EFFECT OF ESTROGENIC SUBSTANCE ON HUMAN DIABETES

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If it is true that the anterior pituitary gland secretes a hormone which has an antagonistic effect on insulin (sometimes considered a diabetogenic hormone) and if it is also true that estrogenic substance has a depressing effect on the activity of the anterior pituitary, then it should follow that the administration of estrogenic substance should favorably influence the diabetic state and even cause the chemical characteristics of diabetes to disappear.

A large and varied amount of experimentation has been reported to indicate that the secretion of both the anterior and posterior pituitary bodies have an antagonistic effect on insulin function. The series of articles on the endocrine system that recently appeared in THE JOURNAL [1] has so thoroughly covered the literature that we felt it superfluous to include any further bibliography. The method of approach to the study of the antagonistic relationship of pituitary to insulin function may be classified as follows:

1. The injection of anterior pituitary or the existence of hyperfunctioning anterior pituitary bodies in disease states is capable of producing a diabetic picture.

2. The experimental removal of the pituitary gland or the clinical state of hypopituitarism produces a hypoglycemia and an increased sensitivity to insulin.

3. The experimental production of diabetes by pancreatectomy is prevented by the removal of the hypophysis.

4. The posterior pituitary hormones have been suspected of possessing properties that are capable of antagonizing the activity of insulin.

There have been several reports in the literature to show that estrogenic substance has the property of depressing the activity of the anterior pituitary.

Spencer and his associates [2] have demonstrated that estrogenic substance is capable of depressing both the gonadotropic and the growth principle of the anterior pituitary in castrated rats. Meyer and his co-workers [3] have confirmed the inhibitory effect of estrogenic sub-

The authors are indebted to Dr. Henry Joachim, physician in chief, for his cooperation.

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1. Glandular Physiology and Therapy, THE JOURNAL from Feb. 9 to Aug. 31, 1935; published in book form by the American Medical Association, 1935.

2. Spencer, J.; D'Amour, F. E., and Gustavson, R. G.: Endocrinology **16**: 647 (Nov.-Dec.) 1932.

3. Meyer, R. K.; Leonard, S. L.; Hisaw, F. L., and Martin, S. J.: Endocrinology **16**: 655 (Nov.-Dec.) 1932.

stance on the gonadotropic hormone. Leiby[4] established an increase in weight of the pituitary, thyroid and adrenal after the administration of theelol to mature albino rats. In another paper[5] he reported that these glands show a marked increase in weight after a combination of anterior pituitary-like principle from the urine of pregnancy and theelin is given. These observations are decidedly contradictory to the determinations of Burch and Cunningham,[6] who found that the gonadotropic function of the pituitary is increased after the administration of placental extract. An important contribution which presented a practical clinical bearing in the treatment of diabetes came from Barnes and Regan.[7] These authors administered 200 rat units of estrogenic substance[8] to dogs for a period of three weeks before performing a pancreatectomy and continued the administration of the substance for a period of three weeks after the operation. They showed that their animals did not develop a pronounced form of diabetes until after the substance was discontinued. They also removed the pancreas of dogs without previous preparation with estrogenic substance, permitting the state of total diabetes to develop, and then were able to reduce the severity of the disease by giving the substance. They concluded from their experiments that estrogenic substance, by suppressing the activity of the anterior pituitary lobe, favorably influences the experimental diabetic state in dogs and suggested its possible clinical application to human diabetes, warning, however, of the danger of adrenal cortical suppression.

These studies have recently been confirmed by the experimental investigations of Nelson and Overholser,[9] who were able to prevent the development of glycosuria in pancreatectomized rhesus monkeys by the daily administration of posterior pituitary extract. They also found that the diabetic blood sugar was

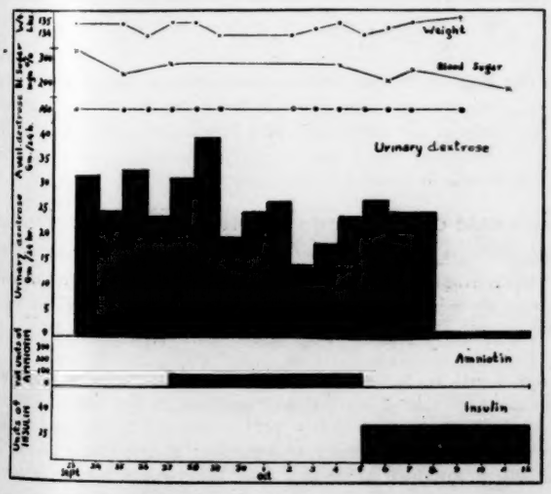

Chart 1.—Course of diabetes in case 1.

lowered after estrogenic substance was given and concluded that the estrogenic substance depresses the diabetogenic hormone of the anterior pituitary.

These reports represent excellent experimental evidence that the pituitary possesses a principle which is capable of antagonizing insulin and that estrogenic substance has a depressing effect on anterior pituitary function.

This paper is concerned with a report of investigations intended to determine the possible application of these observations to the treatment of human diabetes.

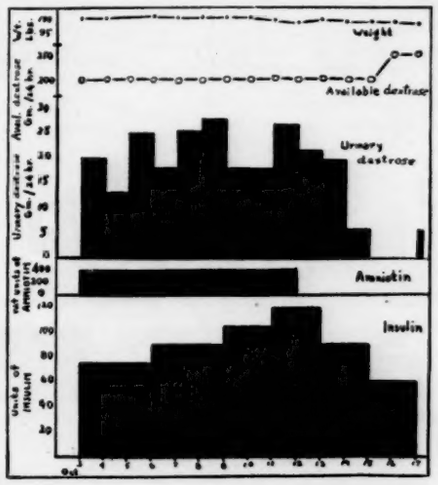

Chart 2.—Course of diabetes in case 2.

REPORT OF CASES

Seven patients with diabetes of varying degrees of severity were selected for this study. Estrogenic substance was employed in daily doses varying between 100 and 400 rat units. Adequate control periods were established in each case and the estrogenic substance was administered continuously for periods up to one month. The diabetic tolerance was established during the previous control period, the experimental period and the postexperimental period. In some cases the insulin was discontinued and estrogenic substance substituted. The details of each experiment will be found in the reports of the following cases and in the accompanying charts.

CASE 1.—J. K., a man, aged 59, Jewish, admitted to the Israel-Zion Hospital, Sept. 23, 1933, had developed diabetes at 48 years of age. He had been under an irregular form of diabetic management during this entire period. On admission he showed nothing significant in the physical examination except that he was slightly underweight. The fasting blood sugar was 340 mg. per hundred cubic centimeters and he was excreting 32 Gm. of sugar in twenty-four hours. He weighed 135 pounds (61 Kg.). He was placed on a diet containing carbohydrate 125 Gm., protein 60 Gm., fat 90 Gm., totaling 1,550 calories, with an available dextrose content of 170 Gm. He was kept on the same diet during the entire experimental period. It will be observed from chart 1 that he excreted a fairly constant amount of sugar during the control period of four days and that his fasting blood sugar was constantly high. He was then given daily 100 rat units of estrogenic substance subcutaneously for a period of eight days, during which he still excreted sugar ranging between 10 and 40 Gm. It was necessary to stop the investigation at this point because of the development of much pain at the site of injection, to which the patient objected. He was then immediately placed on 10 units of insulin three times a day, and within three days the urine became sugar free and remained so. Blood sugars, however, remained constantly high.

CASE 2.—M. P., a woman, aged 59, Jewish, admitted to the hospital Oct. 3, 1933, had a partial thyroidectomy fourteen years before for hyperthyroidism. Sixteen years following the onset of the menopause, manifestations of diabetes appeared. She had received dietetic treatment during the entire period

4. Leiby, G. M.: Proc. Soc. Exper. Biol. & Med. **31**: 15 (Oct.) 1933.
5. Leiby, G. M.: Proc. Soc. Exper. Biol. & Med. **31**: 17 (Oct.) 1933.
6. Burch, J. C., and Cunningham, R. C.: Proc. Soc. Exper. Biol. & Med. **27**: 331 (Jan.) 1930.
7. Barnes, B. O.; Regan, J. F., and Nelson, W. O.: Improvement in Experimental Diabetes Following the Administration of Amniotin, J. A. M. A. **101**: 926 (Sept. 16) 1933.
8. Amniotin was the estrogenic substance used and was furnished to us by E. R. Squibb & Sons.
9. Nelson, W. O., and Overholser, M. D.: Proc. Soc. Exper. Biol. & Med. **32**: 150 (Oct.) 1934.

of the diabetes and had taken insulin for one year prior to her admission. On admission to the hospital she showed manifestations of hyperthyroidism, diabetes and hypertension. She appeared chronically ill and was wasted. She had a nodular enlargement of the right lobe of the thyroid the size of an apricot. The heart was fibrillating, the liver was three finger-breadths below the costal margin, congestive râles were present

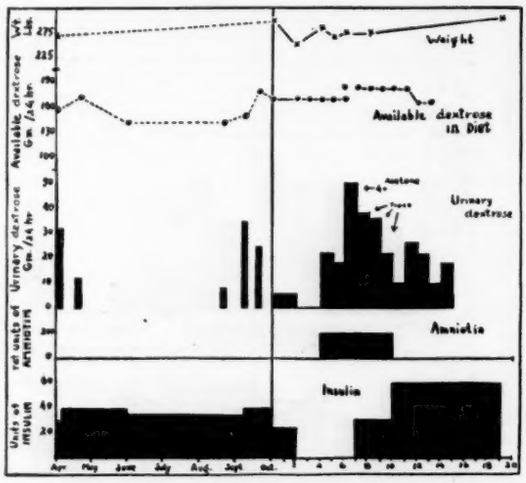

Chart 3.—Course of diabetes in case 3.

at the bases of the lungs and there was a slight edema of the abdominal wall, as well as a pretibial edema. The diagnosis was that of a toxic thyroid adenoma, essential hypertension, coronary sclerosis, auricular fibrillation, myofibrosis cordis, cardiac decompensation and diabetes mellitus with ketonuria. The basal metabolic rate was plus 20 per cent. The blood pressure was 180 systolic, 100 diastolic, and she weighed 102 pounds (46 Kg.) on admission. Urine showed 2 per cent sugar and 3 plus acetone in a casual specimen. Fasting blood sugar was 253 mg. per hundred cubic centimeters. She was placed on a diet containing carbohydrate 175 Gm., protein 75 Gm. and fat 125 Gm. with 25 units of insulin three times a day. She was also given 400 rat units of estrogenic substance subcutaneously each day. The urinary excretion of sugar continued between 12 and 28 Gm., in spite of the fact that the insulin was gradually increased to a point at which she received

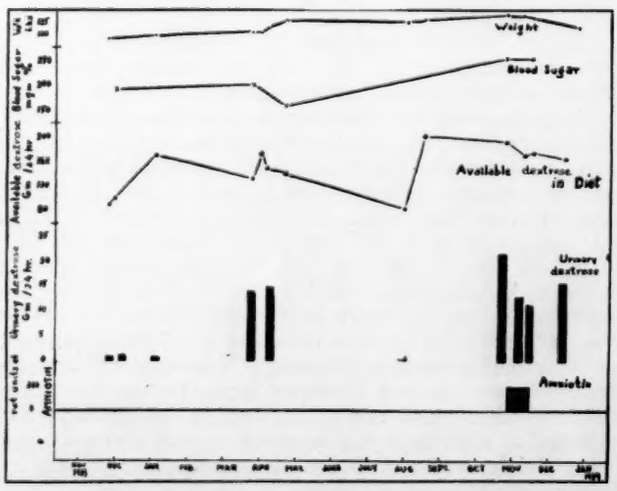

Chart 4.—Course of diabetes in case 4.

120 units daily. At the end of nine days the estrogenic substance was stopped, following which the urinary sugar promptly disappeared. Even when insulin was reduced to 60 units daily, four days after estrogenic substance was stopped, the urine still remained free from sugar. This improvement occurred in spite of the fact that the available dextrose was increased from 210 to 256 Gm.

This experiment appears to indicate clearly that the estrogenic substance not only did not favorably influence the diabetic state but interfered with the recovery of the patient, which occurred promptly after the cessation of the use of the estrogenic substance.

CASE 3.—I. W., a woman, aged 69, Jewish, had been known to have diabetes for eighteen years. The diabetes developed after the menopause. For two years after her admission she had been attending the diabetic clinic, during which time her tolerance was maintained rather constantly on a diet containing 200 Gm. of available dextrose, with 25 units of insulin daily. She was admitted to the hospital Sept. 30, 1933, for the purpose of being studied for the effect of estrogenic substance under adequate control conditions. She was given a diet of carbohydrate 125 Gm., protein 60 Gm. and fat 100 Gm., with 15 units of insulin in the morning and 10 units of insulin at night. Insulin was stopped on the third day, as a result of which she began to excrete from 19 to 22 Gm. of sugar in the urine each twenty-four hours. Beginning with the fifth day she was given 200 rat units of estrogenic substance daily by hypodermic injection and within twenty-four hours the urinary excretion

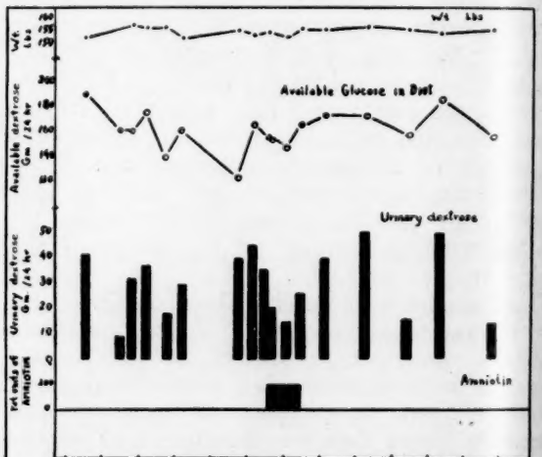

Chart 5.—Course of diabetes in case 5.

of sugar rose to 50 Gm. and showed acetone and diacetic acid. On the seventh day she was put back on 30 units of insulin and the estrogenic substance was still continued. Glycosuria did not disappear until the estrogenic substance was stopped and the insulin increased to 60 units daily.

This case clearly shows that the estrogenic substance, after insulin was suspended, had absolutely no effect on retarding the severe break in sugar tolerance with a rapid development of ketonuria, which could be controlled only by the subsequent administration of insulin.

CASE 4.—B. B., a woman, aged 54, Jewish, was found to have diabetes in 1929 by a routine examination at the time when the patient had an appendectomy performed. The menses ceased after the operation. Under observation at the clinic, Aug. 20, 1932, she complained of weight loss, blurring of vision, pruritus vulvae and weakness. Examination disclosed manifestations of vascular sclerosis, hemorrhages in the eyegrounds and a hypertensive heart. The blood pressure was 194 systolic, 100 diastolic. She was treated with diet and insulin. Her diet contained 175 Gm. of available dextrose and 20 units of insulin a day for one month, during which time the clinical symptoms improved considerably. Then she voluntarily stopped using insulin. Chart 4 discloses the course of the patient's diabetes for one year prior to the experiment with estrogenic substance. Oct. 26, 1933, she was started on 200 rat units of estrogenic substance oral daily for twenty-three consecutive days.

Although the subjective menopausal symptoms improved, it will be seen from chart 4 that there was no change in her diabetic state.

CASE 5.—C. W., a woman, aged 42, Jewish, who came under observation June 2, 1929, complained of the cardinal symptoms of diabetes of four months' duration. Her symptoms were polydipsia, polyphagia, polyuria, progressive asthenia, oral dryness and pruritus vulvae; she also had frequent attacks of flushes and and sweats, in spite of the fact that the catamenia had been regular. The patient had been maintained on a diet containing variable quantities of available dextrose ranging from 150 to 190 Gm. She had refused to take insulin at any time and had been continuously on dietetic management and always excreted between 15 and 40 Gm. of sugar daily. She was never considered a very cooperative patient.

Chart 5 shows the record of her diet and urinary excretion for a period of six months before the experiment with estrogenic substance was performed. Oct. 17, 1933, she was started on 200 rat units of oral estrogenic substance daily, which was continued to November 14, a period of approximately four weeks. Her chart also discloses the character of her urinary excretion of sugar for six months after the experiment was stopped.

It will be observed that there is no appreciable difference between the control period, the experimental period and the postexperimental period.

CASE 6.—L. K., a woman, aged 35, Jewish, came under observation at the clinic with a history of diabetes of two years' duration. She was found to have 10 per cent sugar in the urine, with acetone. She was adequately controlled with a diet of carbohydrate 160 Gm., protein 60 Gm., fat 75 Gm. and 40 units of insulin daily. Oct. 12, 1933, she was given 200 rat units of estrogenic substance subcutaneously, at which time she was excreting traces of sugar in the urine. She was given estrogenic substance for one month while continuing the same dose of insulin. The urine persisted in showing the same traces of sugar and the blood sugar remained at a level fluctuating between 220 and 280 mg. per hundred cubic centimeters.

There was no evidence in this case that diabetes was influenced by estrogenic substance.

CASE 7.—M. B., a woman, aged 57, Jewish, admitted to the hospital Sept. 25, 1933, had had diabetes fourteen years, the onset following the menopause. Her initial complaint was pruritus vulvae and her weight at that time was 280 pounds (127 Kg.). She had received dietary treatment and had lost considerable weight. She was admitted to the hospital because of an attack of multiple furunculosis of the scalp. Physical

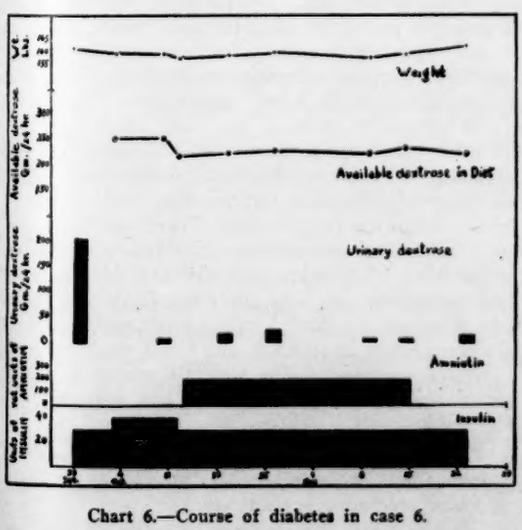

Chart 6.—Course of diabetes in case 6.

examination disclosed, besides the furuncles, manifestations of arteriosclerotic heart disease, moderately decompensated, as indicated by moist râles at both bases, a palpable liver and a moderate amount of pitting edema of both legs. The blood pressure was 180 systolic, 110 diastolic and the fasting blood sugar 355 mg. per hundred cubic centimeters. She was excreting 12 Gm. of sugar in the urine. She weighed 162 pounds (73.5 Kg.). She was placed on a diet of carbohydrate 150 Gm., protein 60 Gm. and fat 110 Gm. without insulin. This diet was maintained during the entire experimental period. Three days after admission she was given 200 rat units of estrogenic substance subcutaneously daily for nine consecutive days. Although her blood sugar dropped to 260 mg. per hundred cubic centimeters, the urinary excretion continued to rise progressively to 40 Gm. a day. The patient was then put on 35 units of insulin daily but she left the hospital against advice before an

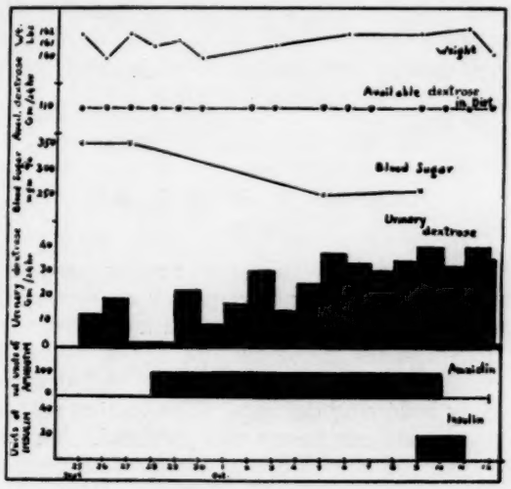

Chart 7.—Course of diabetes in case 7.

opportunity could be obtained to compare the effect of insulin with that of estrogenic substance. There was no evidence that the estrogenic substance had any effect on the diabetic state.

COMMENT

The observations presented here appear to indicate that estrogenic substance has absolutely no effect on the course of human diabetes. The cases in which insulin was stopped and estrogenic substance substituted showed a rapid break in sugar tolerance, sufficient to precipitate the development of a ketonuria. In case 2, which was so severe that we were afraid to suspend the use of insulin during the experiment with estrogenic substance, so severe a diabetic state seems to have developed during the experimental period that we found it necessary to increase the insulin dosage from 75 units to 120 units daily in order to control it. Another interesting feature in this case is that rapid desugarization could be effected as soon as the estrogenic substance was stopped, and even reducing the insulin to the preestrogenic substance period resulted in better control. One may safely say that at the time this patient received daily subcutaneous injections of 400 rat units of estrogenic substance the diabetic state was more severe.

Since our clinical experiments are at such marked variance with the observations reported in experimentally produced diabetes in animals by pancreatectomy, we can only say that human diabetes is pathogenically not similar to experimental diabetes in animals. Although the chemical phenomena of disturbed dextrose oxidation and synthesis are similar in the two instances, it does not necessarily follow that the human diabetic state results only from a nonfunctioning pancreas. And by the same token, what appears to alter the picture of the pancreatectomized animal cannot be logically applied to the human diabetic patient.

CONCLUSION

1. It appears from the literature that anterior pituitary hormone antagonizes insulin, that estrogenic substance suppresses anterior pituitary function, and that

the administration of estrogenic substance partially prevents the development of diabetes following pancreatectomy.

2. Estrogenic substance does not have any beneficial effect on the tolerance of the diabetic patient.

123 Eighth Avenue.

NEUROFIBROMATOSIS

THE EFFECT OF PREGNANCY ON THE SKIN MANIFESTATIONS

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AND
RICHARD H. YOUNG, M.D.
OMAHA

A survey of the literature reveals only a few examples of the effect of pregnancy on neurofibromatosis. Sutton [1] reported the case of a woman, aged 38, who noted pedunculated tumors of the skin, which appeared during her first pregnancy and disappeared completely following delivery. The tumors reappeared during a second pregnancy and persisted. The microscopic study of the skin lesions revealed them to be neurofibroma of von Recklinghausen. Recently, cases of preexisting neurofibromatosis that were made worse with the occurrence of pregnancy but showed a remission following delivery are reported by Kushner,[2] Nishizaki [3] and Hirsh.[3] Other accounts in the literature [4] describe easily confused lesions termed "pigmented warts" and "fibroma molluscum gravidarum," which appear during pregnancy and disappear following delivery.

During the past three years we have examined fifteen cases of the various types of Recklinghausen's neurofibromatosis. In this group we were impressed by the fact that in four cases the course of the disease was definitely influenced by pregnancy. The changes with pregnancy were so dramatic and the effect so distressing that a report seemed warranted.

REPORT OF CASES

CASE 1.—*Development of skin pigmentation and tumors during the latter half of the first pregnancy, with no change after delivery or with second pregnancy.*

J. A., a white woman, aged 34, married, a housewife, entered the University of Nebraska Dispensary, June 11, 1935, complaining of a sharp, paroxysmal pain in the left upper part of the chest and back, which had been present for two weeks. On examination, interest was at once aroused because of the presence of a moderate number of irregular, café au lait pigmented spots in the skin of the trunk. In addition there were about twenty painless, asymmetrical skin and subcutaneous tumor growths of the lower part of the back and the abdomen. There was a slight scoliosis. Roentgenograms of the chest revealed a mass, which was considered a neurofibroma involving the intervertebral foramina of the third and fourth dorsal vertebrae and probably accounting for the pain. Both the patient and her husband stated quite definitely that there had been no skin pigmentation or tumors prior to her pregnancy. They observed their appearance and progression during the latter half of her first pregnancy. Following a normal delivery, the skin manifestations persisted. A second pregnancy seven years later caused no apparent change in either the skin pigmentation or the size and number of the nodules. There had been one miscarriage five years before. At present, her first child has a clear skin, but her 7 year old son has a number of scattered, irregular brownish pigmented spots on his back and abdomen which have been present since infancy. The family history was interesting in that the patient's mother had both skin tumors and pigmentation and died of a sarcoma (?) of the left femur. The patient's two brothers have skin tumors, and one of their daughters is known to be deeply pigmented.

CASE 2.—*Development of multiple skin tumors and pigmented areas during first pregnancy, with an increase in these manifestations during each of seven successive pregnancies.*

E. C., a white woman, aged 56, a widow, entered the University Hospital, Jan. 1, 1935, because of a constant pain in the left thigh for the preceding six months. Examination disclosed multiple painless skin and subcutaneous nodules, pigmented and nonpigmented, distributed mostly on the trunk, with a few on the face and extremities. The skin of the abdomen and neck was irregularly pigmented a brownish black. Before her marriage, the patient's skin was clear except for an occasional freckle on the face and forearms, and one small skin tumor below the left knee. During her first pregnancy, at the age of 19, multiple skin tumors and pigmented spots appeared on her abdomen and back Following delivery the skin nodules ceased to increase in size and number, but during each of the seven successive pregnancies the same phenomenon repeated itself. Except for three miscarriages there were no other complications of pregnancy. Five of her children are living and well; one daughter, aged 24, is moderately pigmented and has a few subcutaneous nodules. The patient's father was heavily "freckled"; the mother, four brothers and five sisters all have clear skins.

CASE 3.—*Pigmentation prior to pregnancy, with appearance of skin tumors during first pregnancy and resumption of activity with each of six pregnancies.*

M. E., a woman, aged 38, married, Italian, a housewife, entered the University Hospital, Aug. 4, 1932, in the active stages of labor in her sixth pregnancy. On examination she showed a deeply pigmented skin, brownish black, most marked on the neck and upper extremities. In addition there were many painless skin and subcutaneous nodules of varying size on the abdomen, chest, back and extremities. Though she had had a few pigmented spots on her back since early infancy, the skin tumors had not appeared until the latter half of her first pregnancy. The nodules and pigmentation ceased to advance following delivery, but resumed their activity with each of the following pregnancies. There had been one miscarriage. Because of the presence of a severe scoliosis, extra precautions were taken with each delivery, but no complications had developed. Two of the patient's daughters, aged 3 and 9, have several pigmented café au lait spots on the trunk and extremities, and, in addition, one has a small subcutaneous nodule covered with hair. The patient's mother had had both skin tumors and pigmentation, but her one sister and brother have clear skins.

CASE 4.—*Generalized pigmentation and formation of skin tumors during first pregnancy, with exacerbation of these features in seven successive pregnancies.*

M. J., a white woman, aged 34, married, housewife, entered the University Hospital, Jan. 17, 1935, with the chief complaints of pain and swelling in the right inguinal region of several weeks' duration. On examination, she showed an extensive, dark, irregular freckling over the body, with numerous soft, small, painless subcutaneous nodules distributed mostly over the trunk and arms. Since infancy the patient had had a flat brown spot, 3 inches (7.6 cm.) in diameter, in the skin of the right inguinal region. It had several tufts of hair growing from it. Generalized pigmentation and skin tumors appeared and per-

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Read before the Central States Association of Obstetricians and Gynecologists, Oct. 10, 1935.
From the Departments of Internal Medicine and Neuropsychiatry, University Hospital, University of Nebraska College of Medicine.

1. Sutton, R. L.: A Clinical Note of Fibroma Molluscum Gravidarum, Am. J. M. Sc. **147**: 419-423 (March) 1914.
2. Kushner, J. I.: Pregnancy as a Complication of Neurofibromatosis (von Recklinghausen's disease), Am. J. Obst. & Gynec. **21**: 116-118 (Jan.) 1931.
3. Quoted by Kushner.[2]
4. Brickner, S. M.: Fibroma Molluscum Gravidarum: A New Clinical Entity, Am. J. Obst. **53**: 191-199 (Feb.) 1906. De Lee, J. B., and Buslig, W. H.: Fibroma Molluscum Gravidarum, Surg., Gynec. & Obst., February 1908, pp. 204-205. Hirst, B. C.: Etiological Influence of Pregnancy on Molluscum, Am. J. Obst. **63**: 256-257 (Feb.) 1911. Brickner, S. M.: Fibroma Molluscum Gravidarum, Am. J. Dermat. **16**: 240-243 (May) 1912. Ward, Ernest: Multiple Pigmented Warts in Pregnancy, Brit. J. Dermat. **25**: 153-154 (April) 1913.

sisted with each of seven pregnancies. There was no difficulty in her deliveries; there had been two miscarriages. The large tumor in the inguinal region had increased noticeably in size with each of the last three pregnancies, and for some unknown reason during the few weeks preceding admission. Of the five children living and well, three show large brown areas of skin pigmentation but no nodules. The patient's mother and father have a clear skin; three sisters all show a deep "freckling" on their faces and necks.

COMMENT

In the report of these four cases, one is immediately impressed with the very definite, detrimental effect of pregnancy on the course of Recklinghausen's neurofibromatosis. Three of the patients had noted café au lait pigmentation of the skin since early childhood (forme fruste); the fourth had had a clear skin until her first pregnancy. In only one case had a solitary subcutaneous nodule developed before pregnancy. In all the patients the occurrence of the first pregnancy gave rise to the appearance of numerous skin and subcutaneous tumors. Histologic study classified them as neurofibromas. In addition, numerous areas of brownish pigmentation occurred that were confined chiefly to the trunk. In all instances, delivery seemed to cause an arrest in the growth and multiplicity of the skin tumors. However, with each subsequent pregnancy the same phenomena occurred. Two patients had had one miscarriage, one had had two miscarriages and the fourth had had three miscarriages. Delivery was normal in each case. Two patients gave a history of irregular menstrual periods and dysmenorrhea. The family history of the four cases reveals that one or both parents had manifestations of the disease. It is also pertinent that each of the four patients have one or more children with the incomplete form of the disease. Three of the four patients are yet in the child bearing age group and are greatly disturbed concerning the possibility of additional pregnancies. In three of the four cases there has been such advancement of the disease that the tumors by pressure on or direct extension into the nerves have caused pain. Besides the production of pain in these three cases the cosmetic effect, the possibility of bone or central nervous system involvement and the chance of ulceration or malignant degeneration are all potent reasons for avoiding additional pregnancies. This naturally leads to the question of sterilization of the patients. In justification, young women with the "incomplete" form of the disease should be warned about the harmful effects of pregnancy.

In the male cases, except for the influence of puberty, there is no comparable phenomenon occurring in their life that increased the skin manifestations. Yet the disease may be just as far advanced and have just as many complications as the type we describe. The factor in pregnancy that causes the lighting up of what might be called the dormant, "incomplete" form of the disease is unknown. We are not yet prepared to theorize on the cause of the disease, but the association of an endocrinopathy, very possibly pituitary, in combination with a developmental anomaly is naturally an inviting explanation. The association of acromegaly and neurofibromatosis has been reported several different times.

SUMMARY

1. Various combinations of skin nodules and pigmentation may occur before, during and after pregnancy.

2. The exacerbation of the disease by pregnancy increased the possibility of bone or central nervous system involvement, the chance of ulceration or malignant degeneration, and the incidence of pain.

3. In four cases Recklinghausen's neurofibromatosis was made definitely worse with pregnancy, as shown by an increase in skin pigmentation, tumor growth, and the development of pain.

4. There were no complications of delivery as a result of the disease.

5. It would seem advisable to prevent the occurrence of pregnancy in those women with either the "incomplete" or complete form of the disease.

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REDUCTION IN COLLOIDAL OSMOTIC PRESSURE OF BLOOD SERUM AFTER SALT INGESTION

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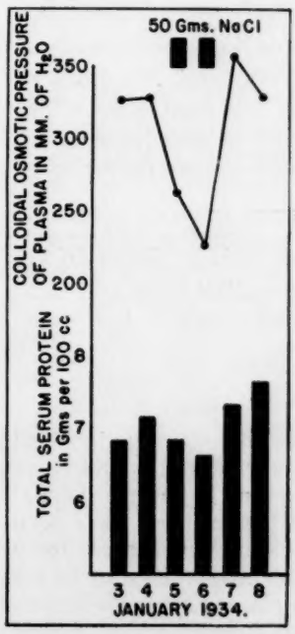
During the course of study of effects of high sodium chloride intake on the blood, the osmotic pressure of plasma protein was measured before, during and after two periods of one day each and two periods of nine days each of high salt ingestion, the sodium chloride intake of the subjects ranging from 20 to 60 Gm. daily. In all the experiments there was a fall in the colloidal osmotic pressure per gram of protein during the period of high salt intake, but owing to technical difficulties with the method we were not satisfied with these observations. Two shorter experiments in which the subjects ingested 50 Gm. of sodium chloride daily for two days have now been completed, membranes and technic being used that yield correct values with normal serums. Puffiness of the eyelids and edema of the ankles were noted in each period of salt feeding. The data for these experiments are given in the table and the chart. There was no change in the albumin-globulin ratio during salt administration. No control experiments with other electrolytes have been completed.



Decrease in colloidal osmotic pressure and serum protein concentration as a result of ingestion of 5 Gm. of sodium chloride daily for two days in subject D. R.

COMMENT

The fall in osmotic pressure of plasma colloids during periods of forced salt ingestion is greater than can be accounted for by change in plasma protein concentration or in albumin-globulin ratio. The practical implications are obvious. It has been known for a long time that restriction of salt in edematous patients with nephritis with low plasma protein may be followed by relief of edema and vice versa. No observations are

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on record, however, of colloidal pressure studies under these conditions. In view of the present experiments a reasonable explanation is forthcoming, which explains edema without assuming two entirely different mecha-

*Effects of 50 Gm. of Sodium Chloride Daily for Two Days**

Date	Plasma Sodium Chloride, Mg. per 100 Cc.	Plasma Cell Ratio in Volumes per Cent of Cells	Total† Serum Protein in Gm. per 100 Cc.	Colloidal‡ Osmotic Pressure in Mm. of Water
Subject H. C. T. December 1933				
11	574	44.8	7.58	288
12	562	44.0	7.34	278
13	557	44.4	7.41	277
14§	582	41.8	6.45	186
15§	579	40.1	6.56	177
16	560	41.1	6.94	267
17	555	42.9	....	242
19	568	43.5	6.79	263
Subject D. R. January 1934				
3	557	44.0	6.83	326
4	554	45.5	7.12	328
5§	602	41.7	6.83	256
6§	585	42.9	6.61	227
7	568	43.5	7.38	357
8	554	45.5	7.68	330

* Edema of face and of ankles noted on second day. The hematocrit readings and plasma protein concentrations indicate a blood dilution of about 10 per cent with from 30 to 35 per cent fall in colloidal osmotic pressure.

† Determined by method of Barnett, Jones and Cohn: J. Exper. Med. **55**: 683 (May) 1932.

‡ By first method of Krogh and Nakazawa: Biochem. Ztschr. **188**: 241, 1927.

§ Subjects ingested 50 Gm. of sodium chloride during the twenty-four hours preceding each of these observations.

nisms acting independently—as has been done in the past—namely, changes in plasma protein level on the one hand and disturbances of ionic balance on the other.

RECENT ADVANCES IN THE SURGICAL TREATMENT OF CHRONIC DUODENAL ULCERS

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The proper surgical management of gastroduodenal ulcers is one of the most controversial subjects as judged by perusing the most recent literature. Different procedures for the cure of peptic ulcers have been advocated since Wölfler introduced gastro-enterostomy for the alleviation of pyloric obstruction. In spite of the period of five decades that has elapsed since his important contribution, opinions have differed widely among surgeons as to the best form of treatment.

For the sake of brevity I shall refrain from entering into a historical review of this subject. As to the advances that have been made during the last fifty years in the treatment of gastric ulcers, one need mention only the terms gastro-enterostomy, local excision, sleeve resection and partial or subtotal gastrectomy to indicate the progress in this field.

In the surgical treatment of duodenal ulcers, progress has been much slower. The palliative methods (gastro-enterostomy with and without pyloric exclusion or with excision of an ulcer on the anterior wall of the duodenum and the different forms of pyloroplasties) seemed to be well entrenched until Haberer [1] introduced the more radical method of partial gastrectomy as the method of choice for duodenal ulcers.

From the Surgical Service of Mount Sinai Hospital.
Read before the Greater Boston Medical Society, Feb. 4, 1936.

1. Haberer, H.: Anwendungsbreite und Vorteil der Magenresektion Billroth I, Arch. f. klin. Chir. **114**: 127, 1920.

It should be emphasized that it is absolutely impossible to make one method fit every condition. No experienced gastric surgeon will claim that partial or subtotal gastrectomy is applicable to every case of peptic ulcer.

The issue has been clouded by overenthusiasm for the radical methods on the one hand and by undue stress on the dangers of gastric resection by the opponents of this method on the other. It has been asserted —and undoubtedly with a great deal of justification— that the substitution of gastric resection for gastro-enterostomy by the general surgeon would raise the mortality to a prohibitive level.

Radical gastric surgery will never be in the realm of the general surgeon with a limited experience in this special field. In order to obtain good results an organization is required, consisting not only of a surgeon with extensive experience in this special field of surgery but of a specially trained intern and nursing staff. Close observation of the patient in the postoperative course is one of the essentials to success in this field of surgery. It is one of the unavoidable results of further progress in new fields of surgery that special groups are formed among surgeons. Nobody will deny today the justification for specialization in thyroid, brain or genito-urinary surgery, to mention just a few that have been formed into special groups within recent years. Though the surgeon becomes narrower in his training, the patient benefits by this specialization.

I [2] have pointed out in a previous paper that it would be impossible to subject every case of gastroduodenal ulcer to a partial or subtotal gastrectomy without incurring a very high mortality. Anybody who has studied carefully in the dissecting room the anatomic relations and the close proximity of a deep duodenal ulcer to the common duct or of a high gastric ulcer in juxtaposition to the cardia will concede that ulcers in these locations cannot be attacked radically without a mortality of at least 20 per cent.

If the majority of ulcers were found in these locations, even the most skilful surgeon would find his mortality figures so high that he would soon abandon radical measures.

It is undoubtedly fortunate for both the surgeon and the patient that ulcers are rarely found in these two locations, probably not in more than about 5 per cent of the cases. The vast majority of ulcers are located in the distal half of the stomach and the first part of the duodenum, the so-called ulcer bearing area, and can be removed radically without undue risk to the patient.

If this small group of nonresectable ulcers is excluded from radical resection, partial and subtotal gastrectomy step out of the realm of hazardous surgery and become perfectly safe procedures, with a mortality not higher than gastro-enterostomy and with a percentage of permanent cures infinitely higher than that following the latter method.

It requires considerable experience to decide, after the affected region has been explored, whether an ulcer should be dealt with radically. The surgeon must keep in mind that once the ulcer has been freed from the pancreas (and about 50 per cent are located on the posterior duodenal wall) he cannot retrace his steps but must proceed with radical resection. In other words, he must visualize the anatomic relations before he begins the resection. He must know whether he will

2. Lewisohn, Richard: Factors of Safety in Resection of the Stomach for Gastroduodenal Ulcers, Ann. Surg. **90**: 69 (July) 1929.

be able to effect a safe closure of the duodenum or whether secondary inflammatory changes are so extensive that the sutures cannot be carried through healthy tissues with the grave risk of a duodenal fistula, with possibly a lethal outcome.

However, even in the small group of cases in which radical removal is not possible, the patient need not be subjected to a gastro-enterostomy. Finsterer's so-called *resection zur ausschaltung* may be safely applied in these cases. The name is not a happy selection. I think that the term Finsterer's prepyloric or postpyloric gastric resection would have been more appropriate. Finsterer's operation leaves the duodenal ulcer in place and carries the line of dissection either just in front of or just beyond the pylorus and insures complete sidetracking of the food. By putting the ulcer at complete rest, secondary healing of the ulcer is supposed to be effected in a reasonable time. In order to establish a marked reduction in the acidity, the proximal line of dissection should be carried as high up as possible on the lesser curvature of the stomach. While the results after a Finsterer operation are often not as good as those following a resection, this method is far superior to a gastro-enterostomy.

Gastro-enterostomy for nonobstructed duodenal ulcer is a badly conceived operation. It should be used only in the small group of cases in which diseases of heart and blood vessels, lungs or kidneys contraindicate any major operation. It may still have its place in the cases of marked obstruction due to a healed ulcer. But I feel that even in this group of cases its value is limited and that resection should be attempted whenever possible. A temporarily healed ulcer may become reactivated at a later period and cause recurrent symptoms. Instead of being praised as the "method of choice," gastro-enterostomy should be demoted to a "method of expediency" in the treatment of duodenal ulcers when for very sound reasons the better operative methods are not applicable.

The gradually increasing unpopularity of gastro-enterostomy is based not only on the frequency with which gastrojejunal or jejunal ulceration follows this procedure but on the persistence of symptoms, even in the absence of secondary ulceration. The patient is not improved, the hyperacidity persists, the preoperative pylorospasm still gives him symptoms. It can be demonstrated easily by giving an animal thionin blue that a gastro-enterostomy does not change the route for the passage of food, which still leaves the stomach by way of the pylorus and duodenum and does not select the stoma, which presents not only a useless but a very dangerous and vulnerable *locus minoris resistentiae*.

Statistics as to the frequency of gastrojejunal ulcers vary widely. They are variously estimated to be below 5 per cent and over 30 per cent. It is perfectly clear that statistics cannot be compared unless they are computed on exactly the same basis. Many statistics include only the cases in which operation has been performed and leave out of account those in which reoperation has not been done, although they may possess all the clinical symptoms of recurrent ulceration. The high incidence of gastrojejunal and jejunal ulcers as reported by me [3] is to be accounted for by the fact that I included cases in which reoperation was done and cases in which operation was not done and in which the diagnosis was unequivocal. Otherwise I would have had 18 per cent instead of 34 per cent.

When this report was published ten years ago the results were criticized as unduly high not only in this country but in Europe. Since then, however, other authors have published similar figures, in some instances even reporting a considerably higher incidence of this most dreadful postgastro-enterostomy complication than I did. For instance, Enderlen and Zukschwerdt [4] found 51 per cent of gastrojejunal ulcers among forty-two patients who had a previous suture of an acute perforation with gastro-enterostomy.

I feel that my estimate was rather conservative. Just as in primary ulcers, all shades of secondary gastrojejunal ulcerations are encountered. These vary from the mild forms to those with very severe manifestations. Hinton and Church [5] have shown that gastrojejunal ulcers encountered at reoperation may present negative roentgen manifestations. Unless one becomes "gastrojejunal ulcer minded," many of the cases of recurrence will be overlooked. One must face the problem with an open mind and not be afraid to acknowledge the failure of a gastro-enterostomy to oneself and to one's patients. If surgeons would scrutinize their results in this frame of mind, the percentage of gastrojejunal and jejunal ulcers as reported by them would probably rise to the neighborhood of 50 per cent.

If an operation for gastrojejunal ulcer would represent a comparatively small operative risk, the major operation of gastric resection might be safely deferred, until this complication arises. However, subtotal gastrectomy for gastrojejunal or jejunal ulcer is accompanied by a mortality of at least 20 per cent. In the presence of a gastrojejunocolic fistula the mortality is much higher. It is not fair to any patient who may have a good life expectancy in spite of his duodenal ulcer to perform a gastro-enterostomy which later on may require a secondary operation with such an inherent high mortality. Gastric resection for gastrojejunal ulcer is one of the most formidable operations in the upper part of the abdomen. Therefore, it is the duty of every surgeon to use surgical methods that minimize the possibility of gastrojejunal ulceration.

If gastric resection is to replace gastro-enterostomy in the surgical treatment of duodenal ulcer it must answer two requirements: the mortality must not be higher than that of gastro-enterostomy and the number of recurrent ulcers must be much lower than those following the latter operation.

MORTALITY

The opponents of gastric resection have laid undue stress on the inherent high mortality of this operation. Undoubtedly some mortality statistics of 10 per cent and over have kept surgeons from adopting this method. However, other statistics show much better results. Bohmansson's [6] mortality of 3.1 per cent, Koennecke's [7] of 1.5 per cent and my mortality of 2 per cent for partial and subtotal gastrectomy in primary gastroduodenal ulcers compare favorably with the postgastro-enterostomy mortality, which is usually reported as between 2 and 3 per cent. Haberer [8] has reported 100 consecutive gastric resections for gastroduodenal ulcers without a death. It is immaterial for the operative

3. Lewisohn, Richard: Frequency of Gastrojejunal Ulcers, Surg., Gynec. & Obst. **40**: 70 (Jan.) 1925.

4. Enderlen, E., and Zukschwerdt, L.: Die chirurgische Behandlung des peptischen Geschwuers, Chirurg. **5**: 849 (Nov. 15) 1933.

5. Hinton, J. W., and Church, R. E.: The Incidence of Gastrojejunal Ulcer Following Gastro-Enterostomy, Tr. Am. Gastro-Enterol. A. **37**: 102, 1934.

6. Bohmansson, G.: Personal communication to the author.

7. Koennecke, W.: Misserfolge nach Ulcusresektionen, Chirurg. **3**: 873 (Oct. 15) 1931.

8. Haberer, H.: Gegenwärtiger Stand der operativen Behandlung des Magen- und Zwölffingerdarmgeschwüres, Deutsche Ztschr. f. Chir. **200**: 231, 1927.

results whether the first or the second Billroth method is used. For instance, Bohmansson and Haberer use the first Billroth method or their modifications almost exclusively, Koennecke employs the first Billroth method at the rate of 2:1, and I prefer the second Billroth operation. It is not the place here to discuss the comparative advantages and disadvantages of these two methods. The surgeon should apply the method that gives him the best immediate and late results.

SECONDARY ULCERATION

When I reported the high incidence of gastrojejunal ulcers (34 per cent) following gastro-enterostomies for duodenal ulcers, performed in the surgical service of Dr. A. A. Berg, the argument was advanced that later statistics from this service might show that partial gastrectomy would not reduce these high figures to a considerable degree. This question could not be answered until sufficient time had elapsed for a proper comparison of these two methods. I have always held that at least an interval of five years is required before fairly definite conclusions about the frequency of gastrojejunal ulcers can be drawn. I am now able to prove my contention that the major operation of partial gastrectomy will reduce considerably the number of gastrojejunal ulcers. Mage presented last year before the Medical Fortnightly of the New York Academy of Medicine a five year follow up of the results of partial gastrectomy performed by Dr. Berg and his associates between 1924 and 1929. A comparison of these two series, given in the accompanying table, shows that the frequency of gastrojejunal ulcers has been reduced from 34 per cent to 7 per cent. In both series the follow up after five years represented about 50 per cent of the material in which operation was performed.

Comparison of Follow-Up Results in Gastro-Enterostomy and Partial Gastrectomy for Duodenal Ulcers

	Cases	Operation Between	Reexamination in	Gastrojejunal Ulcer	Proved by Reoperation
Gastro-enterostomy	68	1915 and 1920	1924	23 cases (34%)	12 cases (18%)
Partial gastrectomy	82	1924 and 1929	1933	6 cases (7%)	1 case (1.2%)

The vast majority of statistics figure the incidence of gastrojejunal ulcers on the basis of reoperations. If one follows this procedure—though I do not approve of this method—the reduction is even more striking; namely, from 18 per cent to 1 per cent.

The value of these statistics lies in the fact that they were computed on the same basis. The same group of men used identical methods (careful personal examination of the patients, investigations by roentgenography and test meals) in the two series. A comparison of statistics published from different clinics relating to the follow-up results after gastro-enterostomy and gastric resection is of little value, as they are arrived at on a different basis.

TERMINOLOGY

A few words about terminology. Gastric resection means the removal of the distal half of the stomach (partial gastrectomy) or more (subtotal gastrectomy). Pylorectomies or partial antrumectomies should not be called gastric resections. The latter operations, though connected with a mortality as high as that following a properly executed gastric resection, have an incidence of gastrojejunal ulcers not lower than that following gastro-enterostomy. Pylorectomy and partial antrumectomy fail to remove the ulcer-bearing area and to reduce the gastric acidity. It is perfectly evident, therefore, that recurrences are apt to follow these operations. The discussion is by no means purely academic. A number of authors have reported gastrojejunal ulcers following these incomplete operations. Instead of blaming the incomplete operation for the recurrence, they have called it a failure of partial gastrectomy. Only a sufficiently wide resection offers a chance for a permanent cure of the patient. A similar circumstance surrounds the surgery in exophthalmic goiter. The best results in operations on the thyroid gland are obtained when only small amounts of thyroid tissue are left behind. If recurrences occur after an incomplete thyroidectomy, the surgeon is justly blamed and not the method. In the same manner gastrojejunal ulcers, after pylorectomies, redound to the discredit of the surgeon rather than to the method.

COMMENT

Sebening [9] has raised an interesting point by referring to the difference in the types of gastroduodenal ulcer encountered in central Europe and in this country. He has tried to explain the reason for the popularity of gastric resection in Germany and Austria as opposed to the popularity of gastro-enterostomy in North America on the basis that ulcers on the continent of Europe are much more severe and extensive than in the United States. I cannot agree with this statement. Frequent visits to European clinics have convinced me that ulcers are identical on the two continents and that all types of ulcers are found on both sides of the Atlantic. One has frankly to face the issue of whether gastro-enterostomy or gastric resection is the preferable surgical procedure. The size of the ulcer is of minor importance, as gastrojejunal ulcers follow small duodenal ulcers just as often as they do large ulcers.

The opponents of gastric resection for duodenal ulcer have laid considerable stress on the fact that a postoperative anacidity is established in not more than about 66 per cent of the cases. The argument has been advanced that it is unjustifiable to subject patients to the major operation of partial gastrectomy if about 34 per cent continue to have free hydrochloric acid. This contention fails to consider two important points: 1. Even in the presence of a postoperative acidity the reduction in free and combined acids is much greater after gastric resection than after gastro-enterostomy. 2. Haberer introduced partial gastrectomy as the operation of choice for duodenal ulcers in 1920. The fact that this operation effects a postoperative anacidity in the majority of the cases was established by Lorenz and Schur [10] in 1922. Haberer planned this operation in order to remove the duodenal ulcer and the ulcer-bearing area (distal half of the stomach). Experience has shown that even in the presence of gastric acidity after partial gastrectomy the incidence of a secondary or recurrent ulcer is much smaller than after gastro-enterostomy or different forms of pyloroplasty.

Paterson [11] opened an address on gastric surgery before the British Medical Association in 1926 with the statement that "there is probably no operation in sur-

9. Sebening, W.: Why Partial Gastric Resection is Preferred for Peptic Ulcers in Germany, Proc. Staff Meet., Mayo Clin. **7**: 139 (March 9) 1932.

10. Lorenz, H., and Schur, H.: Unsere Erfahrungen ueber den Wert der Antrumresektion bei der Behandlung des Ulcus pepticum, Arch. f. klin. Chir. **119**: 239, 1922.

11. Paterson, H. J.: The Place of Gastrojejunostomy in Gastric and Duodenal Surgery, Brit. M. J. **2**: 555 (Sept. 25) 1926.

gery which has added more to the sum of human happiness than gastrojejunostomy." I think that many patients who have had a gastro-enterostomy performed on them will counter with the statement that "there is probably no operation in surgery which has added more to the sum of human unhappiness than gastrojejunostomy," for there are no more agonizing pains than those caused by a gastrojejunal ulcer. After all, the final decision as to the value of any method is always made by the patient. The gospel of gastric resection is spreading among sufferers with ulcer. Many patients have told me that they would not have a gastro-enterostomy performed on them, as they had friends who, far from being improved, had been made much worse by this operation. They prefer the major operation of a partial gastrectomy with a good chance for a complete cure to a gastro-enterostomy with the high incidence of failures. Our follow-up clinic presents an entirely different picture since gastro-enterostomy has been replaced by gastric resection. Complete restoration to health is the rule; complaints about persistent gastric distress are the exception.

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AN OUTBREAK OF BOTULISM IN NEW JERSEY

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Although outbreaks of botulism have previously been reported, little appears about this disease in recent medical literature. An epidemiologic survey of reported cases in the last twenty-two years shows that this disease is far more common in the western United States, particularly along the Pacific coast, and is therefore considered more or less a rarity in the Atlantic coast states. However, it is true that many cases of botulism may have gone unrecognized, probably because of a confusion in diagnosis between this disease and encephalitis, acute poliomyelitis, toxic ophthalmoplegia, and various types of food poisoning.

Because of the extremely high mortality of cases that have occurred in this country, in all probability because botulism had been unsuspected, each individual outbreak merits attention on the basis of presenting new material in the further knowledge and investigation of this disease.

The outbreak described here occurred in Bernardsville, N. J., March 2, 1935, the meal presumably responsible for the onset having been consumed on the preceding day. A family of five, comprising the father, mother, two daughters and the grandfather, became suddenly ill soon after the consumption of a jar of home preserved peppers, served in the course of their meal. The history obtained from the mother relative to the serving of the peppers to all the members of the family, together with the nature of the onset and acute symptoms characteristic of a food intoxication, led to the establishment of an early diagnosis of botulism. Two members (the father and the grandfather) died following a relatively short incubation period, before botulinus antitoxin was available. One of the two daughters received antitoxin, in addition to all other therapeutic measures, but died on the fourth day. The last two members (mother and daughter) were also given botulinus antitoxin in the course of their treatment and fortunately managed to survive, after a stormy convalescence of approximately two weeks.

Although the cases were first seen and diagnosed by the family physician (the author), the patients were placed under the therapeutic and hospital management of Dr. Rodgers of Somerset Hospital, Somerville, N. J., and Drs. S. C. Haven, McLain, C. B. Walker and A. F. Galasso of the Memorial Hospital, Morristown, N. J. Dr. Borow of Bound Brook, N. J., performed the autopsies. The patients were also seen in consultation by Dr. M. J. Rosenau, author of "Preventive Medicine and Hygiene" and member of the Harvard Medical School, Boston, who conducted a personal investigation of this particular outbreak of botulism. He substantiated the original clinical diagnosis and commented on the various phases of the disease.

REPORT OF CASES

CASE 1.—Mr. O., aged 51, the father, was the first victim. On March 1, 1935, Mrs. O. opened a jar of home canned peppers and noted a rather peculiar odor but was not certain whether or not the peppers were spoiled. Consequently she proceeded to serve them in the form of a sandwich for her husband's lunch. The victim, noticing nothing peculiar about the taste or odor of his food, consumed his sandwich heartily at noon of the same day. The following morning he started for work but had to return after an hour or so, complaining of a vague pain in the pit of his stomach, dizziness and constipation, in addition to muscular weakness in his arms and legs. These symptoms manifested themselves approximately twenty-one hours after the ingestion of the contaminated food. In the evening of the same day (March 2), when examined for the first time by a physician, the patient complained of dysphagia, nausea and diplopia, with generalized weakness throughout. In view of the suggestive history and the clinical picture, a presumptive diagnosis of botulism was made and the patient was immediately sent to the nearest hospital. On admission his temperature was 97, pulse 70 and respirations 24, and his blood pressure was 110 systolic, 80 diastolic. The abdomen was somewhat distended and tympanitic. Mentally he appeared alert, his sensorium was clear, and the pupils were dilated and reacted sluggishly to light and in accommodation. The reflexes were equally hyperactive. The respirations, although normal in rate, were very superficial. He appeared extremely toxic and was unable to express himself clearly. The pulse rate was increased to 112 during the last hour. On admission the patient was given 2 ounces of magnesium sulfate, which he swallowed with difficulty, and 50 cc. of dextrose solution intravenously. A nasal catheter was passed into the stomach, which was washed with a 3 per cent solution of sodium bicarbonate. The patient vomited considerable foul greenish gray contents, resembling spinach in appearance. He was also given constant symptomatic treatment. Botulinus antitoxin was not available at the time. Death occurred at 8:40 a. m. March 3, fifty-two hours and forty-minutes after the ingestion of the poisoned food and twenty-three hours after the onset of the disease. The immediate cause of death apparently was respiratory paralysis.

CASE 2.—Mr. L., aged 71, the grandfather, who was the next victim, complained of dizziness, vomiting almost continuously of coffee ground and brown mucoid material with few solid particles, muscular weakness and blurred vision. These symptoms developed approximately thirty-three hours after the ingestion of the responsible food. On admission to the hospital his temperature was 98.6, pulse 74 and respirations 20. Shortly before he died, his temperature was 100.6, pulse 114 and respirations 28. The patient received general treatment, consisting of gastric lavages, catharsis, infusions of dextrose, respiratory and cardiac stimulants, and oxygen and carbon dioxide inhalations. Specific treatment with botulinus antitoxin was not resorted to, as the serum was not available at the time. Death occurred March 3, forty-six hours and twenty minutes after the consumption of the peppers and thirteen hours after the onset of the symptoms. The cause of death also was respiratory failure.

CASE 3.—The last victim to die was Miss M. O., aged 23, who complained of extreme muscular weakness, headache, dysphagia and diplopia, twenty-seven hours after the ingestion

of the peppers. On admission to the hospital she appeared acutely ill, weak and toxic. The pupils were equal and reacted to light and in accommodation. There was rather course nystagmus on looking to the left. There was an external rectus paralysis on the right side. The breath was offensive. The throat was dry and the patient complained of dysphagia. The temperature was 99.2, pulse and respirations 22. The blood pressure was 125 systolic, 70 diastolic. The day following admission to the hospital she became cyanotic, requiring oxygen and carbon dioxide. Her speech became thickened and she complained of inability to expectorate the mucus that had collected in her throat. As her cyanosis increased she was placed in a respirator and for a time responded favorably. Botulinus antitoxin arrived from the Jensen-Salisbery Laboratories in Kansas City, Mo., on the second day of hospitalization, at which time 5,000 units of A and B antitoxin was given intravenously, following a negative conjunctival and skin test. She was given 10 per cent dextrose in saline solution intravenously at 11:50 p. m. that day. The patient was able to articulate more distinctly, felt more encouraged, and complained less about mucus collecting in her throat. The following afternoon, March 5, at about 4 p. m., she had a chill and her temperature ascended to 103.4; the pulse was 112, which later became 134, and respirations were 40 per minute. The heart sounds were normal. The patient was given 5,000 more units of A and B serum. Her blood pressure dropped to 98 systolic, 60 diastolic and breathing became shallow. No significant observations were made on percussion or auscultation of the chest. She was given extensive treatment. Just prior to death however, some course râles were elicited over the anterior portion of the chest on both sides. Death occurred apparently from respiratory paralysis. The sudden rise in temperature, in the presence of chills, led to the suspicion of pneumonia setting in as a complication, favored by the patient's apparent exhaustion. This was later confirmed at necropsy. The patient died at 11:32 a. m., March 6 (the fourth day of hospitalization) approximately 120 hours after the ingestion of several slices of peppers.

CASE 4.—Mrs. O., aged 46, the mother, did not manifest any symptoms prior to her admission to the hospital. About 1 p. m., March 3, forty-nine hours following the consumption of the contaminated peppers, she complained of diplopia, generalized weakness, and thickening of her speech. She developed a marked ptosis of the upper eyelids with a paresis of both external recti and superior and inferior recti. Five thousand units of A and B botulinus antitoxin was administered intravenously. March 4, the third day, she was unable to swallow liquids and became progressively worse. She received 1,000 cc. of 2.5 per cent dextrose in saline solution. March 5, the fourth day, she was able to speak a little more distinctly. March 6, the fifth day, she was able to take 450 cc. of fluids by mouth. Her vision improved also. March 9, the eighth day, she showed marked improvement. She was able to swallow with a little more success, felt stronger, and could speak and see much better. March 14, thirteen days after onset, she was discharged from the hospital, having obtained maximum benefit from her hospitalization, and was allowed to convalesce at home.

CASE 5.—Miss B., aged 23, who had practically tasted a slice of pepper, not desiring any more, stating that the peppers had a peculiar taste, did not develop symptoms until sixty-nine hours afterward. As a result of having had less of the contaminated food, she had the longest incubation period. She was admitted to the hospital on March 3. The following day she stated that she felt dazed and weak and that things appeared blurred before her eyes. Five thousand units of A and B antitoxin was administered intravenously, following a negative conjunctival and skin test. Eight hours after the serum her temperature ascended from 98.6 to 101, the pulse increased to 120 and respirations became 24. A drooping of the upper eyelids was observed. The pupils reacted to light and in accommodation. March 5, the fourth day, she received an additional 5,000 units of the serum. The day following this last administration of serum she showed a marked improvement. She appeared brighter and subjectively better. She had little difficulty in articulation and in taking fluids; however, the ptosis was still present. She also exhibited some sluggishness of tongue protrusion and lateral deviation. March 12, eleven days after the onset, she was placed on a soft diet. Although weak, she stated that she felt considerably improved. On the thirteenth day she was discharged from the hospital as having sufficiently recovered for convalescence at home.

SYMPTOMATOLOGY AND DIAGNOSIS

The incubation periods varied from twenty-one to sixty-nine hours. The usual incubation period of this disease is from eighteen to thirty-six hours after the ingestion of the toxin; however, symptoms may appear as early as four hours and as late as four days after eating the poisoned food, according to some authorities on the subject. The symptoms manifested in this particular outbreak consisted of: 1. Blurred vision, diplopia, blepharoptosis and photophobia. 2. Lassitude and weakness, particularly in the muscles of the arms and legs. 3. Obstinate constipation. 4. Offensive breath. 5. Dysphagia. The patients also complained of a collection of thick, tenacious mucus in the pharynx, which they attempted to raise with considerable difficulty. 6. Inability to articulate; their tongues seemed thickened and moved slowly, producing unintelligible mumbling whenever speech was attempted. 7. Drowsiness. 8. Normal or subnormal temperature prior to the administration of the serum. 9. Vomiting in one case, followed by frequent eructations of gas. 10. Full possession of mental powers. During the entire course of their illness the patients were consciously aware of the gravity of the situation and dramatically pleading for salvation up to the last minute of respiration.

The diagnostic conclusion that the home canned peppers were responsible for the outbreak was arrived at by a process of elimination. The peppers constituted the only questionable article of food served that had been shared by every member of the family.

The manifestation of the clinical symptoms enumerated led to the establishment of an early diagnosis of botulism at the home of the patients, prior to hospitalization.

Treatment in general consisted of forcing fluids, catharsis, lavage, colonic irrigation, early hospitalization with complete rest in bed (exclusion of visitors), removal of mucus in the pharynx by gentle suction with a soft catheter and by wiping the throat frequently, sedatives for restlessness and insomnia, special nursing care, cardiac and respiratory stimulants, and maintenance of respiration by means of oxygen and artificial respiration (Drinker respirator).

In addition, botulinus antitoxin A and B combined was administered to three of the patients, two having died before the serum was available. Of the three that received antitoxin, one died from bronchopneumonia, a complication that set in just prior to death, and the two survivors showed a marked improvement in all their symptoms following the use of serum, despite its unavoidably delayed administration.

LABORATORY EXAMINATIONS

Unfortunately, none of the peppers from the suspected jar consumed were obtainable. Specimens of other jars similarly preserved were secured for bacteriologic examination. When injected into guinea-pigs they produced no pathologic effects. No aerobic or anaerobic growth was present in any of these jars. The stomach contents of one of the patients was found to be negative for any of the heavy metals.

Another laboratory reported the following: 1. Toxicologic examination of the stomach contents and of a jar of pickled peppers was found to be negative for volatile mineral, nonvolatile organic and alkaloidal

poisons. 2. Cultures of the pickled peppers were found to be negative. Cultures of the stomach contents produced luxuriant, anaerobic growths but no Bacillus botulinus and had no effect on guinea-pigs, when injected.

The third laboratory (state department of health) also reported negative results for Bacillus botulinus and for the toxin of these bacilli.

In only a few cases out of many outbreaks of botulism has the laboratory been able to demonstrate positive evidence substantiating the clinical diagnosis.

NECROPSY

The following is a necropsy report of the first victim:

The body was that of a small, well developed, stocky white man, bald headed, with gray hair. There was an incision, well healed in the right upper quadrant, about 5 inches in length. Rigor mortis had set in.

The skull cavity showed no hemorrhage. There was some oozing of the cerebrospinal fluid, which was clear when the brain was removed. There was slight edema and softness of the brain tissue.

There was no free fluid in the thoracic cavity. The lungs were markedly congested, showing chronic passive congestion. No consolidation or hemorrhage was noted.

The heart was dark and seemed normal, outside of a chronic passive congestion.

The abdominal cavity had marked adhesions to the abdominal scar, especially in the omentum. The stomach was fairly well dilated and full of foul greenish gray contents, which had a peculiar foul odor. Part of the contents were saved for chemical examination. The stomach had a gastro-ileostomy hook-up of the posterior type, one portion of the stomach being about 9 inches from the cecum, so that obviously food must have passed from the stomach into the large intestine very rapidly.

The appendix was missing. When the stomach was opened, the mucosa showed marked hemorrhages throughout, although there were no ulcerations; the hemorrhages were worse at the cardiac end of the stomach. The small intestine was full of thick mucus and was congested. The liver was small, turgid in color, showed marked chronic passive congestion, and was soft. The spleen was very soft, was of about average size, and the pulp scraped off readily. It seemed to act like jello. The kidneys were turgid and congested; the cortex was of about average size and the capsule stripped readily. The bladder was not remarkable. The pancreas was very soft and hemorrhagic.

Gross Pathologic Examination.—The heart showed moderate atheromatous changes in the mitral and aortic valves.

The lungs showed intense congestion.

The stomach contained submucosal hemorrhages in the region of the fundus.

The kidneys contained an excessive amount of pelvic fat. The parenchyma was congested but the markings were distinct.

The spleen was fairly dry and fibrous.

The liver showed no gross changes.

The small intestine showed an excessive amount of mucus covering the mucosa.

The brain showed mild pial congestion but otherwise the surface appeared normal. Sections of the cerebral hemispheres, midbrain, pons, dura and cerebellum showed no gross abnormality. Microscopic sections were taken of the cortex and the anterior quadrigeminal body.

Microscopic Pathologic Examination.—The stomach showed no pathologic changes.

The liver showed moderate infiltration of the central cells with pigment; there was chronic passive congestion.

No changes were noted in the heart.

Peculiar pigmentary deposits were scattered throughout the kidneys. Some cloudy swelling of the tubules was present.

The lungs showed marked congestion and edema.

Sections of the brain showed the blood vessels to be clear. There was no inflammatory reaction. There was a slight increase in the oligodendroglia, and the neuron cells showed mild disorganization of the tigroid substance and the nuclei were occasionally eccentric.

Summary.—1. Acute toxic poisoning. 2. Chronic passive congestion of all organs. 3. Hemorrhage into the stomach.

Impression: Toxic neuronophagia.

The poison seemed to come from the toxin of the bacillus of botulism.

SUMMARY

1. A diagnosis of botulism was made on the presentation of a history of having consumed a jar of home canned peppers (having a peculiar taste), and on the basis of the clinical symptoms characteristic of the disease.

2. The clinical diagnosis of botulism was substantiated by the necropsy report.

3. The symptoms of the disease manifested themselves in proportion to the quantity of toxin ingested. One of the survivors, who had the least amount of the contaminated peppers, had the longest incubation period.

4. The symptoms were those of a profound systemic toxemia, characterized by oculomotor disturbance, drowsiness, weakness, and disturbance in the secretions of the throat.

5. An early recognition and diagnosis of botulism intoxication is extremely important. When the diagnosis is established, botulinus antitoxin should be administered as early as possible. Five thousand units of type A and B, to be repeated as often as is necessary, should be given intravenously. Despite the delayed administration of serum in this particular outbreak, there appeared a marked change of improvement in all the symptoms of the two survivors.

6. Death apparently occurred from respiratory paralysis due to the action of the toxin in the cells of the central nervous system.

7. Botulism should be differentiated from food poisoning. The latter has a shorter incubation period and, while the symptoms are alarming, the mortality is low. In botulism the symptoms are severe and the mortality is high.

8. The necropsy report revealed a toxic neuronophagia and a chronic passive congestion of all organs.

9. Botulism is far more common in the Pacific Coast states. This outbreak is one of a few that have occurred in the East.

10. There are only two other cases on record in medical literature of botulism caused from home canned peppers. These cases occurred in California and proved fatal.

11. Although convalescence is extremely slow, the two survivors manifested no permanent disability from this disease and have fully regained their former condition of health.

COMMENT

1. The control of similar outbreaks of botulism can be brought about only through an accurate recognition of the symptoms and an immediate report of cases.

2. Measures should be taken to have botulinus antitoxin immediately available when needed, as a means of offering each patient the maximum hope of recovery.

3. Prevention of botulism should consist in a widespread campaign of education relative to proper methods of the home canning of vegetables and fruits.

4. The extremely high mortality of botulism is a challenge to medical science and deserves continued investigation and research. Perhaps consolation for the slow rate of progress in the scientific knowledge of this disease may be found in the words of the poet: "Whither we cannot fly, we must go limping."

Veterans Administration Facility.

FEVER THERAPY FOR GONOCOCCIC INFECTIONS: II

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It has become a sort of fashion, among those who write about the therapeutic value of heat, to trace it back to the Romans and the Greeks. What a tremendous burden of responsibility has been thrown on the Romans and the Greeks for so many things sacred or profane! During the height of the Roman Empire there were, in Rome proper, a large number of public bathing establishments, some of which were enormous and imposing institutions, such as the baths of Caracalla and those of Diocletian. The baths of Caracalla, for instance, occupied a building almost 1,200 feet square. In this mammoth structure were a series of pools, in each of which the water was kept at a different temperature from hot to cool; in each pool the temperature of the water was maintained by special heating arrangements. Besides these pools there were rooms for epilation, for massage and for various other procedures. It was the fashion at that time, among the young bloods and gay sophisticates of Rome, to go to these bathing establishments for a hot bath and rub, followed by epilation and by anointment with various aromatic and cosmetic preparations, after which they went forth resplendent and smelling as one does when one leaves certain barber shops. Practices such as these can hardly be looked on as therapeutic procedures; they smack altogether too much of ordinary hygiene and cosmetic efforts, with emphasis on the latter. In any event, the use of heat under these circumstances was entirely empirical and can hardly be dignified by the name of heat therapy.

The empirical use of heat for relief of various human ailments is as old as the human race. More than 4,000 years ago the Chinese used heat extensively and with about as much knowledge as the Romans. The only difference between the two was that the Romans made such practices fashionable and popular and provided for them in numerous, elaborate and imposing edifices.

In Japan, since about 1700, the famous natural springs of Kusatsu have been used for the empirical treatment of syphilis, arthritis, gout and many other disorders. The water in these springs issues from volcanic formations at temperatures varying from 37.7 to 71.1 C. (100 to 160 F.). For convenience, small individual tanks are placed in the pools and, if the water happens to be too hot for a particular bather, he stirs it with a large wooden paddle until he thinks it is cool enough to bear. Then he immerses himself up to the neck and remains in this hot water as long as possible; usually this is a matter of from three to six minutes, when he emerges looking almost like a boiled lobster. Such immersions are repeated several times a day and are continued for from three to five weeks. Distinctly beneficial results are often observed. But again the procedures surrounding the use of heat under these conditions are clearly empirical.

True fever therapy, as it is now understood, originated with Wagner-Jauregg, who made it known in 1918. It was he who found that inoculation with malaria of a patient suffering from dementia paralytica is often followed by improvement or complete remission of symptoms. Since then, malarial therapy has had a considerable vogue. In the hands of some the results have been excellent; in the hands of others the results have not been so good. This variation in results has probably been due to a number of factors, one of which undoubtedly has been the facility with which malarial therapy could be used under satisfactory conditions.

Since then, many other methods of inducing fever artificially have been employed. Among these may be mentioned injections of crystalloid or colloid substances, or of heteroproteins such as peptone, milk and casein. Others have injected vaccines prepared from paratyphoid micro-organisms or from Haemophilus Ducreyi (dmelcos). These different methods, which are sometimes classified under the designation physiologic but which should perhaps more truthfully be classified under the designation pathologic, have been used with varying degrees of success. A number of objections have been raised against them. The most important objections have been the uncertainty of the resulting fever and the difficulty of regulating the fever. For these reasons, many physicians have continued to seek more satisfactory methods of raising the temperature of patients for therapeutic purposes.

Among the various physical methods that have been tried may be mentioned hot baths, diathermy, short-wave diathermy, radiant light (infra-red generator or carbon filament lamps), inductotherapy, and air-conditioned chambers. Hot baths can be used effectively when the period of fever need not be long, but when it is desirable to maintain the fever for an extended period (several hours) this method becomes a distressing and debilitating experience for the patient and is difficult to use satisfactorily. Diathermy has been found effective. This method requires the application to the patient of large ventral and dorsal electrodes, which must be carefully maintained in contact with the skin over a large area. This involves the use of a large jacket, which is firmly laced around the patient in order to maintain the required contact between the electrodes and the skin. Even with such a jacket, however, contact may be broken by movements of the patient, and burns may result. Moreover, the method makes it impossible to keep the skin beneath the electrodes under observation. Another objection is that the fairly tight lacing of the jacket gives the patient a sense of constriction and respiratory oppression that is decidedly uncomfortable. Short-wave diathermy has been used with considerable success, especially in Europe, although its therapeutic possibilities were first recognized in this country. Until simpler and more effective means became available, simple diathermy and short-wave diathermy were the best methods of inducing fever. The use of short-wave apparatus, however, cannot be described as a simple procedure. The apparatus itself is somewhat complicated and its operation is fraught with various technical difficulties,[1] such as the tendency of the current to arc to pools of perspiration and the constant necessity of causing the perspiration to evaporate from the skin as rapidly as it is formed. This requires more or less elaborate accessory equipment.

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1. This does not apply to the use of short-wave apparatus for local heating only. Also, in apparatus of this type manufactured in Europe some of these difficulties have been partly eliminated.

Radiant light fever chambers are being used with more or less satisfaction. One point in their favor is that they are less expensive than certain other types of apparatus designed for this purpose. A disadvantage, however, is that, with most chambers of this type, the elevation of temperature is rather slow. In treating certain conditions which require that a high temperature be maintained for several hours, undue slowness in inducing fever becomes an important objection, because the patient becomes fatigued before his temperature has risen to the level at which it is to be maintained.

Of the different types of physical apparatus thus far designed for fever therapy, the one which appeals to us as the most effective from all points of view is the air-conditioned chamber known as the Kettering hypertherm. With this chamber the temperature can be raised more rapidly than with radiant light chambers, and any degree of fever can be attained and maintained for as long as the condition of the patient allows or requires. Moreover, the patient's body (except the head, which is outside) is entirely free within the chamber, and the apparatus does not involve the use of contact electrodes, condenser plates or other electric gadgets of any kind.

AIR-CONDITIONED FEVER CHAMBER (KETTERING HYPERTHERM [2])

This chamber (fig. 1) consists of a rectangular box about 6 feet long, 30 inches high and 36 inches wide, mounted horizontally on long legs and divided into two unequal parts: one, the main compartment occupied by the patient, is large enough to accommodate the trunk and extremities; the other is a small, shallow compartment at the foot of the chamber and separated from the main compartment by an asbestos partition, in which is a small, open grill; in this smaller compartment is mounted the simple mechanism designed to heat and humidify the air as well as to force it to circulate through the chamber proper. The ceiling of the chamber is double, and the anterior third of the inner layer of the ceiling contains a large number of holes, through which the heated and humidified air furnished by the generating mechanism penetrates the main compartment of the chamber and circulates around the patient. The floor of the chamber also is double, and its inner layer constitutes a bed which, moving smoothly on brass rollers, can be rolled into the chamber or withdrawn from it with little effort. The bed is covered with a comfortable air mattress. The two legs supporting the head end of the chamber are double, and one set, forming an integral part of the rolling bed, is fitted with casters to facilitate the inward or outward movement of the bed.

At the head end of this bed is a projecting shelf, which remains outside the chamber when it is closed and on which rests the head of the patient. This end of the chamber can be closed by means of a vertical panel which, sliding in metal grooves at each side, can readily be lowered or raised; once closed, this panel is firmly held in place by two large hand screws. One turn of these screws permits the panel to be quickly raised, and the patient can thus be withdrawn from the chamber in five seconds. In the center of the lower border of the vertical panel is a rather large and deep, circular indentation that surrounds the patient's neck. Within this main indentation is fixed a piece of sponge rubber, in which a smaller, secondary indentation fits loosely around the neck. In order to provide for variations in the size of the neck of different patients, and to prevent the escape of air, which would reduce the efficiency of the apparatus and interfere with treatment, the space between the rubber and the neck is loosely packed with a towel.

The side walls and ceiling of the chamber are made of heavy celotex, while the floor is made of wood. It is essential that the chamber should be as air tight as possible.

The thermogenic mechanism consists of a small electric air heater, with three units; this is controlled by external switches which make it possible to use one or all three units at will, and also by a thermostat which permits one to regulate the temperature of the air within the chamber; and a pan of water heated by two small electric elements, the heating of the water for humidification being regulated by an automatic humidistat. But, in order to avoid uncertainty about the degree of humidity, this factor is verified by dry and wet thermometric readings. The data thus obtained permit the exact calculation of the degree of humidity. The heated and humidified air thus produced is then forced by an electric blower between the two layers of the ceiling of the chamber, whence it enters the main compartment through the holes in the anterior portion of the inner layer of the ceiling, circulates around the patient about ten times a minute, and returns to the heating and humidifying mechanism through the grill in the partition that separates the patient from the mechanism.

By means of panels sliding in metal grooves at each side, it is possible to keep the patient's skin under observation, to take the blood pressure as often as may be necessary, and to take the rectal temperature every few minutes. Moreover, in case of emergency the patient may be withdrawn from the chamber in a few seconds. These undoubtedly are advantages which are not provided for to the same degree by any other method or apparatus with which we are acquainted.

Later, it is possible that more simple and less costly apparatus may be conceived and constructed. For example, chambers with infra-red elements or carbon filament lamps, or apparatus incorporating the principle of inductothermy, may be perfected so as to do away with the present disadvantages. But however simple the thermogenic methods may become, it is doubtful whether fever therapy, especially for diseases of which the treatment requires that a high temperature be maintained for hours, will ever be an office procedure.

An essential point is that, throughout a session of treatment, the patients must be under the constant observation of specially selected and trained nurse-technicians, and that the technical personnel should be constantly supervised by a physician familiar with all

2. This apparatus was conceived and perfected at the Miami Valley Hospital and at the Research Laboratories of the Frigidaire Division of the General Motors Corporation, Dayton, Ohio, by Dr. Walter M. Simpson, with the collaboration of Mr. Charles F. Kettering, director of the Research Laboratories of the General Motors Corporation, and Mr. Edwin C. Sittler of the Research Laboratories of the Frigidaire Division of the General Motors Corporation. The apparatus is not on the market and, because of the danger of unscrupulous exploitation, probably never will be, as far as outright sale is concerned. At present a smaller, simpler and less costly apparatus is being developed. If, later, its wider distribution should seem desirable, the apparatus will probably be ceded on a loan-lease basis to selected institutions. Fifty-five of these units have been lent to twenty medical research centers, strictly for investigative purposes. The production and maintenance of artificial fever therapy at high temperature is not adaptable to ordinary office practice. The physicians and nurses charged with this undertaking received special training in the Department of Fever Therapy Research at the Miami Valley Hospital, before the apparatus was released. Adequate preliminary training of physician personnel and nurse personnel is an essential requirement for this type of work. We are indebted to Dr. Simpson and Mr. Kettering for the privilege of using this apparatus, four hyperthermes being now in constant operation at the Mayo Clinic.

phases of the method. The technicians are not allowed to leave the patient until the session of fever has been completed and until the temperature has returned to normal. If a technician must absent herself momentarily, her place is taken by another technician or by the supervising physician. Lunch for doctor and nurses is served in one of the treatment rooms or in the office. Under such conditions, and if the patients are carefully selected, only minor complications are likely to occur. Slight circulatory incidents (pulse), gastro-intestinal disturbances (nausea and vomiting), or muscular tetany (hands, feet or abdominal wall), may occur in a few cases, but, rapidly arrested by appropriate measures, they do not interfere with treatment.

GENERAL CONSIDERATIONS

Those who attended the twenty-third French Congress of Medicine, held at Quebec in August 1934, heard the interesting reports of Richet, Roger, Fribourg-Blanc, Halphen and Auclair, and Bessemans, on the biologic agents suitable for inducing fever therapy for certain diseases of the nervous system, for infections and diseases of nutrition and of the blood, for syphilis, and on physical methods of thermogenesis. In their report, Halphen and Auclair mentioned fever therapy for acute gonorrhea and gonococcic arthritis in the following terms: "It is a tedious and dangerous procedure, hardly in keeping with the relative benignity of the disease or with the results obtained, at least in man." At the time this judgment was pronounced it was approximately accurate, but at the present it is no longer valid. Although fever therapy at high temperature may be somewhat tedious, the improvement of physical thermogenic apparatus, the judicious selection of patients, and a painstaking technic carried out by a specially trained team remove practically all danger of serious complications and make possible the cure of a high percentage of acute or chronic gonococcic infections of the urethra, epididymis, cervix and body of the uterus, fallopian tubes and joints, and this within a period which may vary between two and four weeks but which, in the majority of cases, varies between two and three weeks.

When the treatment was given with the thermogenic means available at the time (simple diathermy or short-wave diathermy), we agree with Halphen and Auclair that the procedure was really tedious and exhausting, and that the results were uncertain and far from striking. But that period of trial is over. Now it is possible to cure most patients who have simple gonorrhea or gonorrhea complicated by epididymitis, metritis, salpingitis or arthritis, whether the infection is acute or chronic. And the certainty of cure is such that, if a patient returns three or more weeks later and tries to make us believe that a fresh discharge is evidence of recurring infection, we know that this is not true and we always succeed in making the patient admit a recent sexual indiscretion.

If a few cases of gonococcic infection prove rebellious to treatment, this is because certain strains of gonococcus can tolerate a temperature of from 41.1 to 41.7 C. (106 to 107 F.) for a longer time than can certain patients. Fortunately, the number of such cases is small. Another reservation must be made. In certain women suffering from gonorrhea complicated by infection of Skene's glands, that part of the infection which involves the urethra, uterus, tubes or articulations rapidly disappears under the bactericidal and resolving influence of a sufficiently high temperature maintained for from six to ten hours and repeated three or more

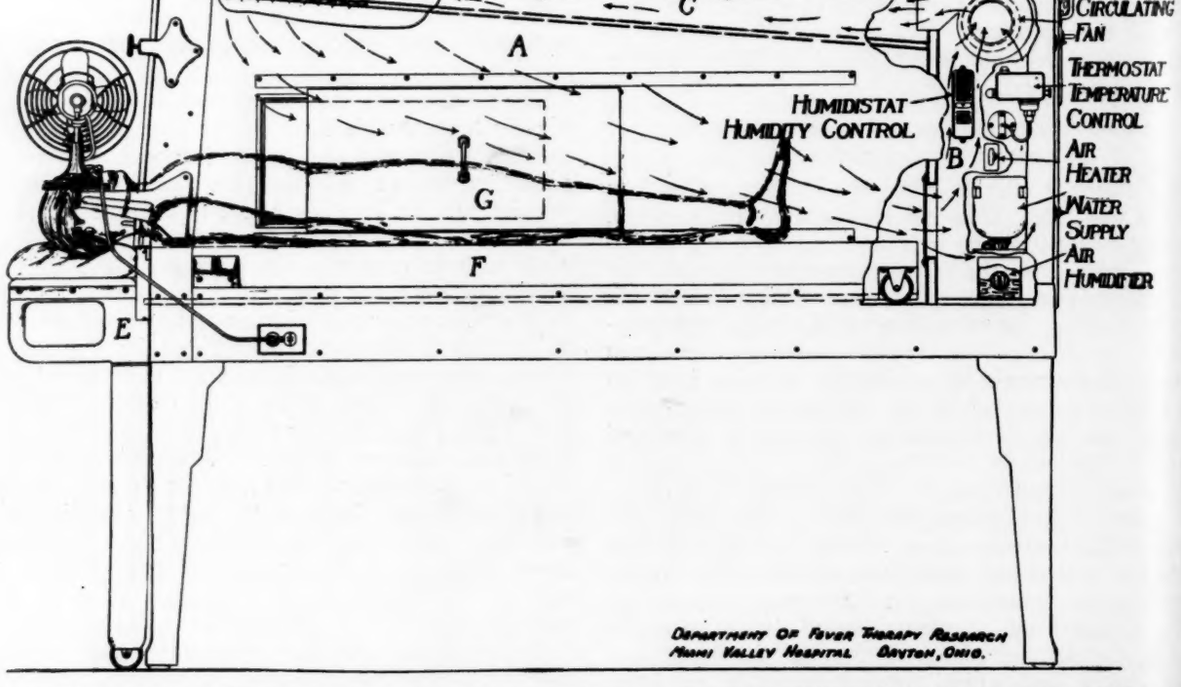

Fig. 1.—Diagram of the Kettering hypertherm. *A*, the main compartment. *B*, the small compartment at the foot end of the chamber, in which is mounted the mechanism for heating and humidifying the air and causing it to circulate through the main compartment. *C*, the air channel between the two layers of the ceiling. *D*, the vertical panel which closes the chamber during sessions of treatment. *E*, the external, projecting portion of the rolling bed, on which rests the head of the patient. *F*, the rolling bed on which the patient lies. *G*, one of the sliding panels at the side of the main compartment, which permits constant observation of the skin, the determination of rectal temperature, pulse and blood pressure, and general care of the patient.

times at intervals of two days. But to cure the infection of Skene's glands it is sometimes necessary to cauterize these structures.

GONOCOCCIC INFECTION

Bactericidal Action of Heat on the Gonococcus.—Antecedent reports of cases are often interesting and sometimes throw light on certain questions. Thus, Bogdan [3] recorded a case of gonorrhea in which the urethral discharge ceased during a pneumonia but reappeared after the fever had subsided. Finger, Ghon and Schlagenhaufer [4] found it impossible to induce urethritis by injecting gonococci into the urethra of a patient whose temperature varied between 39 and 40 C., while urethritis always supervened after similar injections into patients without fever. Guiard [5] reported a case of gonorrhea in which the urethral infection disappeared spontaneously during an attack of scarlet fever. Neisser and Scholtz [6] testified to a constant difficulty in cultivating the gonococcus from febrile patients. Luys [7] made a similar observation in a case in which the temperature, during an attack of mumps, rose to 40 C. Culver [8] had the same experience; a urethral infection disappeared in the course of an attack of malaria lasting four days, in the course of which the patient's temperature rose to 40.5 C. Culver claimed that a sudden rise of temperature to 39 C. suffices to destroy the gonococcus. However, the observations of Nobl [9] and of Nicoll [10] do not seem to corroborate Culver's assertion.

Bacteriologists have long known that the gonococcus can best be isolated and cultured at a temperature of 37 C. and that the organism does not grow so well at a temperature higher than 38 C. Steinschnieder and Schäffer [11] noted that a temperature between 40 and 41 C., maintained for a few hours, is sufficient to destroy the gonococcus. Wertheim [12] claimed that the organism grows well at 40 C. and may even tolerate a temperature of 42 C., but his results were not confirmed by those of other investigators. Santos [13] succeeded in isolating the gonococcus from pus that had been subjected to a temperature of 45 C. for forty-five minutes. By heating the male urethra by means of diathermy, on the other hand, Boerner and Santos [14] could not isolate the organism after ten hours of temperature at 39 C., three hours at 41 C., and fifty-seven minutes at 41.7 C. Ylppö [15] treated a vulvovaginitis of a girl, aged 5 years, by means of hot baths, beginning with a temperature of 39 C. and increasing the temperature of the water to 41.5 C. After eight daily baths, each lasting one hour, Ylppö could no longer isolate the gonococcus. Ungermann [16] found that certain strains of gonococcus can withstand a temperature of 41 C. for ten hours and that a few strains may even tolerate a temperature of 52 C. for seven hours.

Koch and Cohn [17] were of the opinion that the gonococcus can tolerate a high temperature in vivo more radily than in vitro. This opinion was based on the fact that, in the course of an acute infection in man, gonococcic infection can resist a temperature of 40 C. for several days. These different observations and results give an impression of divergence but, when they are analyzed in relation to the degree of temperature and to the duration of temperature, the impression of divergence diminishes. The remaining portion, which cannot be accounted for by these two factors, is probably due to the variable tolerance to temperature of different strains of gonococcus.

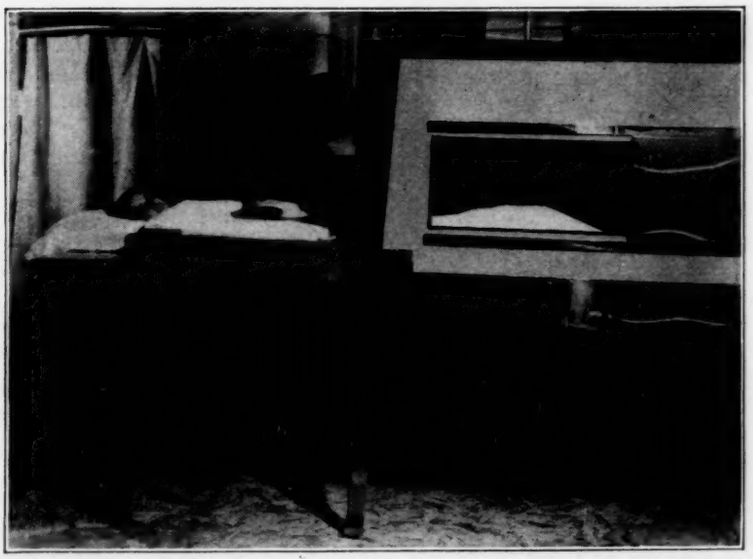

Fig. 2.—The open chamber, with a patient ready to begin a session of treatment (side panel open).

In spite of the apparent significance of the preceding observations, fever therapy for simple or complicated gonococcic urethritis owes still more to the investigations of Carpenter, Boak, Mucci and Warren,[18] who undertook a systematic determination of the influence of heat on the gonococcus. Their specific aim was to determine the degree and duration of temperature that can be tolerated by man and are necessary to destroy this microbe. With this object in view, they subjected fifteen strains of gonococcus to temperatures of 39, 40, 41, 41.5 and 42 C. All the strains of gonococcus that they studied had been cultivated from one month

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18. Carpenter, C. M.; Boak, Ruth A.; Mucci, L. A., and Warren, S. L.: Studies on the Physiologic Effects of Fever Temperatures, J. Lab. & Clin. Med. **18**: 981-990 (July) 1933.

to twelve years. The ability of the different strains to withstand the temperatures mentioned varied considerably. The cultures isolated ten or twelve years previously tolerated heat for a longer time than the recent cultures. In spite of this variation in tolerance, 99 per cent of the gonococci could not withstand a temperature of 41 C. more than four or five hours, but 1 per cent was not destroyed until this temperature had been maintained for twenty-three hours. When subjected to a temperature of from 41.5 to 42 C., 99 per cent of the gonococci were destroyed in two hours, but 1 per cent had to be heated at 41.5 C. for from seven to twenty hours, or at 42 C. for from five to fifteen hours, to effect their destruction. It is to these thorough investigations of Carpenter, Boak, Mucci and Warren that we owe the possibility of rapidly curing gonococcic infection. At present the gonococcus is the only micro-organism of which the lethal temperature has been determined and which can be tolerated by human beings. It is possible that the future may furnish equally favorable data on other bacteria; in this event the field of therapeutic hyperpyrexia will be correspondingly extended. By this it is not intended to imply

Fig. 3.—The chamber closed and a session of treatment started. The fan blows cool air around the patient's head and the technician passes over the patient's face towels dipped in ice water.

that fever therapy has no other basis than a knowledge of the temperature necessary to destroy other bacteria effectively and cure other diseases. Far from it. But in those other diseases one must depend on the indirect effects of heat, while in gonococcic infection the cure is mainly, if not wholly, a question of degree of temperature and duration of temperature; consequently, the principal, and perhaps the entire, effect is direct and specific.

CONTRAINDICATIONS

Advanced age with its cardiovascular changes, and organic lesions of the heart at any age, are outstanding and more or less formidable handicaps to fever therapy. Functional disorders of the heart may or may not interfere with treatment. Severe renal disturbances also may make effective fever therapy difficult or impossible but, on the whole, they interfere with treatment less than cardiac or cardiovascular disturbances. Pulmonary tuberculosis per se is not a contraindication, but the resulting impairment of respiratory function may make it impossible to raise the patient's temperature to the required level or to maintain it at this level for a sufficient period. When diabetes is under satisfactory clinical control, fever therapy is not contraindicated.

TECHNIC

The patients are first submitted to a general examination in order to eliminate those whose cardiovascular or renal condition might contraindicate fever therapy. In those cases in which the clinician may be slightly uncertain, electrocardiography and a functional examination of the vessels serve to clarify the situation. If the condition of a patient still remains in doubt, he is subjected to a trial session of fever therapy and, if this is well tolerated, the treatment is continued until the disease is arrested. As a matter of fact, the number of cases with definite contraindications is small. In general, the age of gonorrhea is the age of physical vigor. It may occasionally happen that a person 60 or more years of age may succumb to temptation, and this indiscretion may have a rather introspective sequel, so to speak; but such cases are exceptional.

After having been weighed, the patients, completely undressed but temporarily covered with a bath robe, enter the chamber at about 8 o'clock in the morning, without breakfast. The chamber is already warm, the mechanism having been run for about half an hour. The feet and legs are covered with boots of cotton and gauze to prevent the concentration of heat at the toes and around the bony prominences of the ankles (fig. 2). The blood pressure is taken and the chamber is closed. The indentation in the piece of sponge rubber fixed to the lower border of the vertical panel is adjusted around the patient's neck and, in order to prevent excessive leakage of air, a towel is loosely stuffed into the space between the neck and the sponge rubber. The bath robe is then removed from the patient and the session begins.

The temperature of some patients rises to 41.1 C. (106 F.) in sixty minutes; in other cases such a rise in temperature may require from seventy-five to ninety minutes. At the outset and as long as the rectal temperature does not exceed 40 C. (104 F.) the temperature is taken every fifteen minutes, but beyond 40 C. (104 F.) the rectal temperature is taken every five or ten minutes.

Certain authors have advocated the use of a recording electric thermometer, with a thermocouple in the rectum. We have tried instruments of this kind, but they have an appreciable and disconcerting lag. Every mechanical instrument is subject to breakdown, which may be all the more serious because the personnel naturally tends to rely on its automatic operation. Moreover, when a nurse is given a dial or scale to watch and is instructed to govern her actions by its indications, her attention is focused on the dial or scale rather than on the patient. Our experience with recording thermometers has led us to prefer an ordinary thermometer, because of its greater reliability but also because the manual method of taking the temperature gives the technician an additional opportunity to watch the patient.

At the beginning of each session of treatment, when the temperature passes from 39 to 40 C. (102.2 to 104 F.), one often observes a period of mild excitement, which has been called the "hurdle" and which probably is a defensive reaction of the body to the accumulation of heat. Once this physiologic hurdle has been passed, the patient becomes more quiet and may go to sleep, while the temperature rises rapidly. If the patient is nervous, pentobarbital sodium or codeine is adminis-

tered to help him over the "hurdle." In order to make the sessions less tedious and uncomfortable, a well protected electric fan blows fresh air around the head of the patient, and throughout the sessions the technician passes over the patient's face and head towels dipped in ice water (fig. 3). True delirium rarely occurs. When the temperature is between 41.1 and 41.7 C. (106 and 107 F.), certain nervous patients show a certain degree of excitement. Usually, codeine or sodium amytal suffices to quiet them. Just as important and

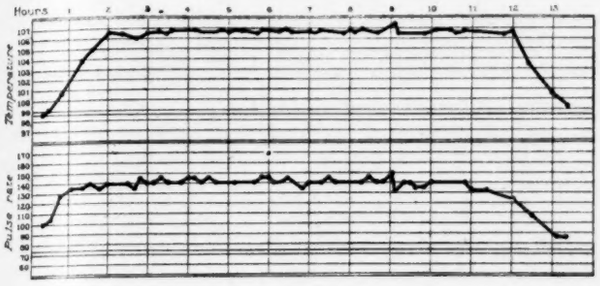

Fig. 4.—Chart of temperature and pulse throughout a ten-hour session of fever between 106.5 and 107.2 F.

effective is the influence of the technician who, knowing her patient, reads, tells stories or allows him to sleep, according to the psychologic indications. This is one of the reasons why the technicians should be carefully chosen; they must be able to adapt themselves to the temperament of their patients, some of whom may be simple and phlegmatic farmers, while others may be cultured, sophisticated or neurotic individuals. Morphine is used as little as possible, because of its well known tendency to induce nausea and vomiting. However, in certain patients who, without it, would be difficult to control, a limited use of the drug is made.

Skill in fever therapy is shown by the ability of the technician to maintain the temperature of a patient within one degree at any level, but, in the case of gonococcic infections, between 41.1 and 41.7 C. (106 and 107 F.); such skill requires intelligence, thorough training and experience. A superior technician can often keep the temperature between 41.4 and 41.7 C. (106.5 and 107 F.) for ten or more consecutive hours (fig. 4).

An observation that is interesting, but without significance, may be mentioned. Between 11:30 a. m. and 1 p. m. many patients exhibit a mild degree of agitation. This is probably due to the habit of the stomach of being fed at this hour. When this phase of agitation appears, a sedative is given and quiet is soon restored.

As the temperature rises the patient perspires more and more freely and, if appropriate measures were not taken, loss of weight (from 1 to 5 pounds, from loss of water) and pronounced weakness for several days (from loss of chlorides) would result. To prevent these complications, the patient is made to drink, throughout each session of treatment, from 2 to 5 liters of 0.6 per cent saline solution (iced). After the temperature has risen above 40 C., the majority of patients no longer taste the salt and do not object to it; on the contrary, they continually ask for more. In some cases in which the taste of salt persists and is unpleasant to the patient, salt water is alternated with fresh water. With this regimen the weight of most patients, instead of falling, increases from 1 to 5 pounds, and the ensuing weakness is not only less pronounced but lasts only twelve to twenty-four hours (fig. 5). Of 100 patients weighed before and after treatment, the weight of seventy-nine had increased by from 1 to 5 pounds; the weight of twenty patients had diminished because, for various reasons, they had not taken a sufficient quantity of saline solution. Many of these patients had been treated in the early phase, before we had learned to prevent or to control nausea and vomiting.

During each session of treatment the condition of the skin frequently is observed and, if an area of erythema appears, it is first covered with a towel in order to prevent the direct impact of hot air. If, as sometimes happens, this is not sufficient, the erythematous area is covered with a piece of ice for fifteen or thirty minutes, and the erythema usually subsides. These measures make it possible to avoid burns. In a few cases, however, small, vesicular burns may result from a local deficiency of the sudoriferous glands or blood vessels, but frequent and careful examination of the skin enables one to prevent them or to make them insignificant. If the temperature of a patient is allowed to rise too rapidly, the skin may not have time to adapt itself and may show signs of overheating. Also, the skin of some patients is more sensitive than that of others. On this account, at the first session or two, it may be difficult to raise the temperature to the required level. When the difficulty arises from a tendency to diffuse erythema from an extensive functional inefficiency of the sudoriferous system, the problem may solve itself. One or two sessions of moderate fever may so increase the functional capacity of the perspiratory mechanism that more effective treatment may subsequently become feasible. In a few cases in which the skin is exceptionally sensitive, it is sometimes

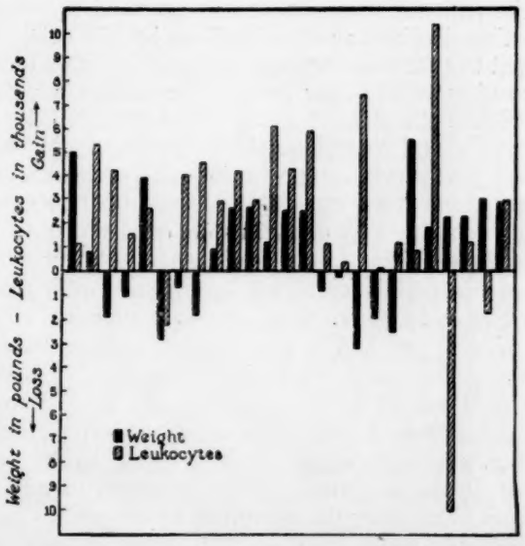

Fig. 5.—Chart showing that the weight of the majority of patients increases during a session of treatment and that there is no connection between weight and number of leukocytes per cubic centimeter of blood.

necessary to bandage the extremities. Because of the tendency of heat to concentrate on small parts, the skin of the extremities usually is more sensitive than that of the trunk. The skin of the female also is more sensitive than that of the male, although this rule is not absolute; exceptions are not rare.

The rate at which the temperature rises is related to the sensitiveness of the skin, the cutaneous distribution and function of the sudoriferous glands, and the

functional activity of the heart and lungs. In two cases we have observed that, even at a temperature of 39.3 C. (102.7 F.), there was no evidence of perspiration, the skin was excessively red and dry, and the patients complained bitterly. In such unusual cases it is important not to force matters, under penalty of a serious accident. It is wise to proceed more slowly. At the first session, as soon as the functional deficiency of the skin becomes apparent, too rapid a rise in temperature is to be avoided so as to permit the skin to adapt itself to the new conditions. If, nevertheless, the skin shows itself unable efficiently to dissipate the heat brought to the surface by the blood, the patient's temperature should not be allowed to rise above 39 or 39.5 C. (102.2 or 103.1 F.). Such conduct during the first session or two of treatment is usually rewarded by functional improvement of the skin, and subsequent sessions may proceed normally. The temperature of the same patients may then be carried to 41.1 C. or even to 41.7 C. without further difficulty.

At the first session of treatment, regardless of the behavior of the skin, it is unwise to allow the temperature to rise above 106.5 F. (41.4 C.) at any time. Not only the skin but the heart, lungs and blood vessels should be given an opportunity to adapt themselves to the treatment; these structures should not be exposed suddenly to the undue functional stress of a temperature higher than that mentioned. In other words, the first session should always be regarded as a test session, and the ability of the patient's cardiovascular, respiratory and cutaneous systems to tolerate a high temperature should be closely observed. If this is not done, serious complications may occasionally arise.

Food is not permitted during the sessions of treatment but, as soon as a session has been completed and the patient's temperature has returned to normal, the patient is given as much milk as he will drink and is urged to take more milk at frequent intervals during the ensuing twenty-four hours. Sometimes a patient may violate the rule of going without breakfast, but the nausea and vomiting which usually follow soon convince him that the rule was not made without a good reason. Sometimes, especially in female patients, nausea and vomiting may occur in spite of abstinence from food on the morning of a session of treatment. This difficulty is rapidly corrected by injecting into a vein from 500 to 1,000 cc. of a solution containing 10 per cent of dextrose and 1 per cent of sodium chloride, and the session need not be interrupted. If this difficulty were not so readily corrected, the patient would be unable to take a sufficient quantity of saline solution and the treatment would probably have to be interrupted. In the majority of cases, however, nausea and vomiting occur after the session of treatment has ended and probably result from overfilling the stomach with saline solution at some stage of treatment. Spontaneous evacuation of the mass of liquid usually terminates the disturbance.

How Do Patients Tolerate a High Temperature for Several Hours?—The majority of patients tolerate the treatment quite well, and their behavior is a faithful reflection of the character and temperament of the individual. The poised person, who is determined to get well as rapidly as possible, behaves accordingly. Some patients hum, sing, smoke, or amuse themselves by teasing the technician. Some remain quiet and sleep much of the time. Others, with less will power or whose nervous system is less stable, complain more or less. Certain nervous individuals, persons without will power or fortitude, or those who have never known the meaning of self control, beg to be released from the chamber long before the session is scheduled to end. But, after one or two sessions, most patients become accustomed and their apprehension diminishes more or less. Naturally, the necessity of spending from six to ten hours at a temperature of 41.1 or 41.7 C. (106 or 107 F.) can hardly be described as a vacation sport, but there is a clear difference between a natural fever, such as that which arises from a spontaneous infection, and the hyperpyrexia produced by a physical method. The first may be accompanied by chills, while the last does not have any toxic factor and is free from chills. This is an essential distinction. All the physicians and nurses in the service have had a session of fever for personal experience and, before any patients are treated in a newly installed chamber, its operation is tested by ourselves. The experience of a session of treatment is not at all terrifying.

How Many Sessions of Treatment Are Necessary to Cure a Gonococcic Infection?—In the majority of cases, that is in 90 per cent, from three to six sessions are required to cure the disease, and the cure is complete and permanent. In many cases smears of urethral pus do not reveal any gonococci, or attempts to culture the gonococcus are unsuccessful, after the first or second session of treatment but, in order to prevent all danger of recurrence, the patient is given two additional sessions. In some cases the smears and cultures do not become negative until after the third, fourth, fifth or even the sixth session; and in a few exceptional cases, in which the gonococcus is unusually resistant, a cure is obtained only after eight, ten or twelve sessions. In all cases, smears and cultures are prepared the second day after the second session of treatment. Until recently, the gonococcus could be cultured only with difficulty and considerable uncertainty; for this reason, smears were more reliable. But the method of culture recently devised by McLeod, Coates, Happold, Priestley and Wheatley,[19] especially as simplified by Thompson,[20] has so well overcome the former obstacles that culture now is a more delicate and reliable diagnostic method than smears.

Duration of Sessions of Treatment.—The duration of the sessions of hyperpyrexia varies according to the relative resistance of the gonococcus in each case. As we have already pointed out, the destruction of the micro-organism depends on two main factors: degree of temperature and duration of temperature. The relative importance of these two factors is approximately equal. If a sufficiently high degree of temperature (from 41.1 to 41.7 C., or 106 to 107 F.) is not attained, if this degree of temperature is not maintained long enough (from six to ten hours), if the number of sessions is not sufficient, or if the interval between sessions is too long, the infection is not completely or permanently cured. Were it feasible to give the entire treatment in a single session, even if such a session had to be prolonged to ten, twelve or even twenty consecutive

19. McLeod, J. W.; Coates, J. C.; Happold, J. C.; Priestley, D. P., and Wheatley, B.: Cultivation of the Gonococcus as a Method in the Diagnosis of Gonorrhea, with Special Reference to the Oxydase Reaction and to the Value of Air Reinforced in Its Carbon Dioxide Content, J. Path. & Bact. **39**: 221-231 (July) 1934.

20. Thompson, Luther: A Simple Method of Supplying Carbon Dioxide in Jars for Bacteriologic Cultures, Am. J. Clin. Path. **5**: 313-315 (July) 1935.

hours, the results would be equally good. Carpenter and Warren, at Rochester, N. Y., have adopted this mode of procedure, but in the majority of clinics and hospitals such a technic would be difficult or impossible.

At the beginning, in our service, the sessions of fever lasted five hours and were repeated only when the urethral or vaginal discharge reappeared; that is, after from three to seven days. It soon became evident that in many cases the sessions were too short and the interval between sessions too long. Since then the technic has been modified. At present the first two sessions are regarded as test sessions and last six hours, by which is meant six hours of temperature between 41.1 and 41.7 C. (106 and 107 F.). Since the phase of elevation of temperature varies between sixty and ninety minutes, and since the phase of return to normal at the end of each session is approximately as long, the total duration of the session varies from eight to nine hours. An interval of two days separates the two initial sessions as well as all other sessions. If, after the second session, the urethral or vaginal discharge has ceased, and if the smears and cultures no longer show gonococci, two sessions of the same length and at the same interval complete the treatment. But if, after the second session, the discharge continues, or if smears or cultures still disclose gonococci, the duration of the sessions is increased to eight hours (total duration, ten or eleven hours). Then, if one session of eight hours does not suffice to destroy all the gonococci, the subsequent session is extended to ten hours. Fortunately, such long sessions are rarely necessary, but it happens occasionally that, even after three sessions of ten hours (total duration, twelve to thirteen hours), and although the discharge may have ceased for one or two days, the smears and cultures still contain active gonococci. If, in such cases, the duration of the sessions of hyperpyrexia could be prolonged to twelve or even fifteen hours, a cure would still be possible. If, on the contrary, the patient's condition does not permit, or if the patient refuses to submit to such long sessions, the infection continues or returns. We have had such an experience in only three cases.

Action of Fever Therapy on Cardiac Function.—The pulse rate increases rapidly at the beginning of each session of treatment; that is, throughout the phase of rising temperature. Then the pulse rate tends to stabilize itself, but the level of relative stabilization varies considerably. In some cases the pulse rate increases to 120 beats a minute and then oscillates at about this level during the remainder of the session. This is commonly seen in the more or less phlegmatic patient whose nervous system is stable. In other cases the pulse rate increases to 140 or 150 beats a minute and becomes stabilized at this level; in such patients the amplitude of oscillation tends to be greater. This is frequently noted in the patient whose nervous system is unstable and who easily becomes agitated. Between these two extremes there is a wide variation in reaction of the cardiac mechanism. If, during a session of treatment, the pulse rate rises to 160 beats a minute, this is regarded as a signal of potential danger and the patient is closely watched. If the pulse rate should exceed 160 beats a minute, the rule is to withdraw the patient from the chamber and terminate the session without further delay; a fresh trial may be attempted two or three days later but, if the pulse does not behave more satisfactorily on the second occasion, further treatment is given up.

This rule, however, is not absolute and is subject to a few exceptions. Even with a pulse rate of 160 beats a minute, certain patients tolerate the treatment well; but when the pulse rate rises to this level or higher, the greatest vigilance must be maintained. Again, it may happen that the normal pulse rate of a patient (before treatment) may be higher than that of the average patient. During a session of hyperpyrexia, with the rectal temperature between 41.1 and 41.7 C. (106 and 107 F.), the pulse rate of such a patient may be as high as 160 or even 180 beats a minute, without greater danger than in another patient whose pulse rate at the same temperature has become stabilized between 140 and 150 beats a minute. We have had the opportunity to observe this phenomenon in one case, in which, at each of six sessions of treatment, the pulse rate rose to and oscillated between 150 and 190 beats a minute. The condition of the patient remained entirely satisfactory, and the infection was rapidly cured.

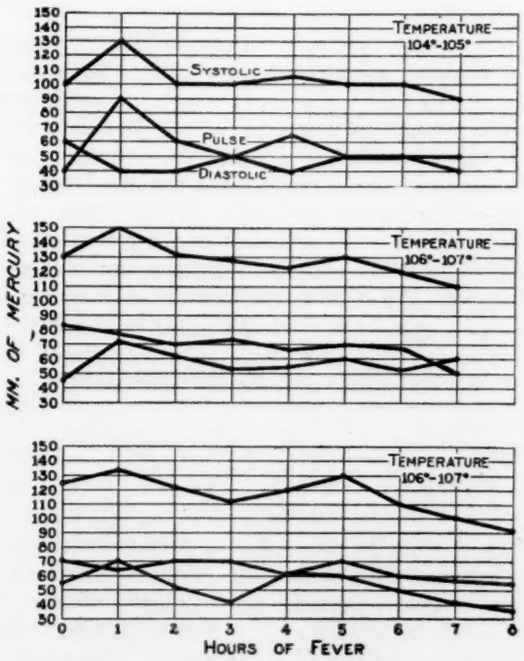

Fig. 6.—The systolic, diastolic and pulse pressure of three patients during a six-hour session of hyperpyrexia.

Action of Fever Therapy on Blood Pressure.—An almost constant observation is that the blood pressure rises more rapidly than the temperature. By this is meant that the pressure begins to rise before the temperature, and this advance continues until the temperature has reached the maximal level at which it is to be maintained. This fact may seem anachronistic but is readily explained by the physiologic adaptation of the body to any increase in temperature. When the body is subjected to a temperature higher than its ordinary temperature, it seeks to dissipate the excess of heat. It matters little whether the increase in body heat is brought about by exposure to external or internal sources of heat, because the body can diminish the excess of heat only by two principal means: cutaneous evaporation through perspiration and pulmonary evaporation through respiration. Therefore, as soon as the body heat begins to increase, even by one degree, the heart begins to function more and more actively, because the heart is then called on to propel the mass of blood more and more rapidly toward the pulmonary

tree and toward the capillary system of the skin. Naturally, this demands a greater and greater activity of the heart as the temperature ascends, but what surprises one at first is the rapidity with which this increase in cardiac function occurs.

During the phase of thermal elevation, that is, during the first hour of each session, the systolic blood pressure increases considerably. As a rule, the systolic pressure increases by 20 to 30 mm. of mercury. But after the maximal temperature has been attained, and during the entire period that it is maintained, the systolic pressure gradually falls, hour by hour, so that at the end of a six-hour session the systolic pressure is slightly lower than at the beginning of the session. This drop in systolic pressure generally varies from 10 to 50 mm. of mercury. The diastolic pressure, on the contrary, does not rise during the period of thermal ascension but slowly falls throughout the period of hyperpyrexia. In the majority of cases the total fall in diastolic pressure varies from 10 to 35 mm. of mercury (fig. 6).

Like the pulse, the reaction of the blood pressure to heat is a matter of individual variation. By itself, the significance of this variation is slight. What is important to know and to watch attentively is the variability of the pulse pressure and pulse rate of each patient, which is to say the differential variations between the systolic and diastolic pressures of the same patient. This is the most accurate index of the condition of the patient and of his ability to tolerate an increase in temperature. If the pulse pressure diminishes, one must be on one's guard; but, if the pulse pressure falls to 20 mm. of mercury or below, the patient should immediately be withdrawn from the chamber and the session terminated. Such a fall in pulse pressure must be taken as an indication of cardiovascular insufficiency, which should not be prolonged.

COMPLICATIONS

When the treatment is carried out under the conditions and according to the indications and technic that have been given, serious complications of any kind should rarely be encountered. Only slight and insignificant complications are likely to occur. The most common disturbance encountered during or after a session of hyperpyrexia is headache; but, since the headache almost always subsides spontaneously within a few hours, special measures to relieve the patient are seldom required. Since the possibility of erythema and the methods of dealing with it have already been mentioned, no further reference to them will be made. In certain cases in which there is a natural tendency to labial herpes, more or less numerous herpetic lesions around the lips may appear after the first session of treatment, but they tend to diminish and to heal spontaneously as the sessions are repeated. They should be treated on general principles.

Nausea and vomiting, which supervene in a small proportion of patients (nearly always women), especially in those who, in spite of strict instructions not to eat any breakfast, have violated this rule, may complicate the treatment by preventing the patient from drinking a sufficient quantity of 0.6 per cent saline solution, which is so essential to compensate for the loss of chlorides and to diminish the weakness which otherwise must inevitably ensue. As has already been pointed out, this complication rapidly vanishes after intravenous injection of 500 or 1,000 cc. of a solution containing 10 per cent of dextrose and 1 per cent of sodium chloride. Rarely need the treatment be interrupted on this account.

Another unusual complication, which may occur in a few cases, is muscular tetany of the hands or feet or sometimes even of the abdominal wall. Doubtless, this tetany is an expression of hyperventilation (excessive respiration), because it disappears almost instantaneously when the patient is made to breathe carbon dioxide (5 per cent of carbon dioxide mixed with 95 per cent of oxygen). An intramuscular injection of 10 cc. of calcium gluconate is equally effective in most cases, but the effect of carbon dioxide is more certain. In the seventy-six patients treated for gonococcic infection included in this report, muscular tetany occurred only once. In other words, one need not be unduly concerned about it; but, when it occurs, it is well to understand its genesis and to act promptly for the well being of the patient.

RESULTS

Between Dec. 1, 1933, and Aug. 1, 1935, ninety-two patients with simple or complicated gonococcic infection were referred for fever therapy. Sixteen of these patients did not receive complete treatment, either because they failed to cooperate or for other reasons, and must therefore be excluded from further consideration. Of the seventy-six patients[21] who faithfully completed the treatment, sixty-eight (89.5 per cent) were cured and the condition of seven (9.2 per cent) improved; in only one patient did the infection prove rebellious to treatment. These results would have been even better if some of the patients who were treated early could have been excluded. At that time the only fever chamber available was not air tight and, until the significance of this defect was recognized and the defect was remedied, it was frequently difficult or impossible to raise the patient's temperature sufficiently or to maintain it at a proper level for a sufficient length of time. This partly accounts for the fact that a few patients were not cured until they had received nine, ten, eleven or even twelve sessions of fever. During that period, also, the treatment of some patients was interfered with by factors which we have learned to prevent or to control. With improved technic and greater experience, it is now safe to assume that between 90 and 95 per cent of patients can be cured. The seventy-six patients included in this report received 444 sessions of treatment, or a rough average of six sessions for each patient.

Sessions of Treatment Received by Patients Who Had Gonococcic Infection

Number of Patients	Number of Sessions of Treatment
1	1
8	3
9	4
15	5
25	6
5	7
5	8
2	9
3	10
1	11
2	12

21. These include the twenty-nine patients in the cases reported in a previous communication on this subject (J. A. M. A. **104**: 873-878 [March] 1935).

As may be seen in the table, the majority of patients required six sessions or less. In other words, in fifty-eight cases an average of five sessions of treatment was required to cure the disease permanently. One patient was cured with a single session of treatment. Severe herpes of the lips, mouth, nose and pharynx developed after the first session and further treatment had to be postponed. The patient was confined to bed for nine days; she could not eat, and drinking was difficult. Smears made nine days after the session of treatment failed to show any gonococci, and two cultures made during the succeeding week also were negative. The patient has remained well.

Of the seventy-six patients who completed the treatment, fifty-three were males and twenty-three were females. Thirty-five were married and forty-one were single persons. The shortest duration of the infection in any case had been three days, and the longest duration had been six years, or an average duration of five months. In thirty-six cases the gonococcic infection was confined to the urethra, while in forty cases various complications existed. Five patients had associated pelvic infection, probably of the same kind, although secondary infection may have played a part in the process. Twelve had associated prostatitis, seventeen had gonococcic arthritis as well as urethritis, three had infection of Bartholin's glands, two had epididymitis, one had seminal vesiculitis, four had urethral sinuses, one had periurethritis, one had infection of Skene's glands, one had a prostatic abscess, one had a periurethral abscess, one had pyelitis, two had cystitis, and one had ureteritis.

As far as complications occurring in the course of the treatment or as a result of it are concerned, thirty-one patients had varying degrees of nausea and vomiting. This occurred in seventeen males and fourteen females but, since the total number of male patients treated was sixty-five while the number of female patients was twenty-seven, the proportion in which nausea and vomiting supervened was 26 per cent for the males and 52 per cent for the females. In three cases the vomitus was slightly streaked with blood, but an associated gastro-intestinal lesion could not be found. The tinge of blood probably resulted from rupture of capillaries in the gastric mucosa from the retching efforts of the patient. Muscular tetany was noted in only one case. Small cutaneous vesicles, without significance, were observed in twenty-four cases, and labial herpes developed in eight cases. Forty-two patients complained of headache after treatment, but this usually subsided within a few hours. Four patients complained of pain in the muscles. It is not yet clear to what factor the muscular pain may have been due.

One male patient had had diabetes for some time when he also contracted a gonococcic urethritis. The diabetes having long been well controlled and the patient being free from other contraindicating disturbances, he was subjected to treatment like any other patient. The first session of fever was followed by a reactive flurry, but this subsided rapidly. At the first few sessions the temperature could not be maintained at the required level for a sufficient time, but the subsequent sessions were satisfactory. The urethral discharge did not cease and smears continued to show gonococci until after the seventh session of treatment. If, from the very start, the required temperature could have been maintained steadily for five or six hours, it is certain that the number of sessions necessary to effect a cure could have been materially reduced.

Gonococcic Arthritis.—The rapidity with which, in a large proportion of cases, the clinical manifestations of gonococcic arthritis subside as a result of fever therapy is astonishing. In the course of the very first session of treatment the pain abates rapidly and the swelling diminishes a little more slowly. When the articular inflammation is acute the effect of fever therapy sometimes is really spectacular. In most cases thorough treatment is followed by complete and permanent resolution of the inflammatory process. When the inflammation is chronic, the clinical manifestations usually abate promptly and the infection is cured. But when the infection has already injured the bones, has already induced reparative changes in the form of connective tissue proliferation or deposition of bone, these as well as the resulting disturbances of function may be favorably influenced to some extent but cannot be expected to disappear completely.

NONSUPPURATIVE ENCEPHALITIS

REPORT OF FIVE CASES

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Nonsuppurative encephalitis, first described by Barlow and Penrose [1] in 1887, has been comparatively rare until within the last decade. Most of the cases reported have appeared during the past seven or eight years. It has been suggested by Neal and Appelbaum [2] that the increased incidence of this condition may be due to a greater interest on the part of the physician.

The condition occurs during or following the acute exanthematous diseases, especially measles, dysentery, typhus, pneumonia, influenza, herpes, postvaccinal diseases and exogenous poisons, such as arsenic, lead and alcohol; and recently Winkelman and Eckel [3] reported five cases complicating acute rheumatic fever. Barker [4] has described the so-called hemorrhagic encephalitis as an acute condition occurring suddenly in previously healthy young persons.

No definite statement can be made concerning the etiology. Actual microbic invasion of the brain has not been found. Levaditi [5] and Pette [6] believe the condition is a degenerative process caused by viruses. Globus [7] holds that it is an inflammatory reaction.

Autopsy reports on the postinfectious forms of encephalitis show distinct gross and microscopic lesions of varying degrees. The leptomeninges show an engorgement of the vessels and considerable fluid in the subarachnoid spaces. There is no mention of any inflammatory exudate over the surface of the brain. In general there is a tendency toward a flattening of

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From the Steuben County Laboratories.
Read before the New York State Association of Public Health Laboratories, Nov. 1, 1935.

1. Barlow and Penrose: On a Case of Early Disseminated Myelitis, Tr. M.-Chir. Soc. London **70**: 77, 1887.
2. Neal, Josephine B., and Appelbaum, Emanuel: Encephalitis Associated with Measles, J. A. M. A. **88**: 1552 (May 14) 1927.
3. Winkelman, N. W., and Eckel, J. L.: The Brain in Acute Rheumatic Fever, Arch. Neurol. & Psychiat. **28**: 844 (Oct.) 1932.
4. Barker, A. B.: The Nonsuppurative Forms of Encephalitis, Arch. Path. **19**: 213 (Feb.) 1935.
5. Levaditi, Constantin: Les ultravirus provocateurs des ectodermoses neurotropes, Ann. Inst. Pasteur **45**: 673 (Dec.) 1930.
6. Pette, H.: Ueber die Pathogenese der multiplen Sklerose, Deutsche Ztschr. f. Nervenh. **105**: 76, 1928.
7. Globus, J. H.: Inflammatory Disease of the Central Nervous System, Arch. Neurol. & Psychiat. **28**: 810 (Oct.) 1932.

the convolutions with shallow sulci. The cut surface presents a striking appearance. There are hemorrhages, situated mainly in the white matter, which vary in number and size. Some are extensive extravasations destroying much of the brain tissue, while others are tiny punctate hemorrhages. The congestion and hemorrhages give the brain a pink color.

Microscopic examinations of these brains in general show a perivascular hemorrhage about some of the small vessels. The perivascular spaces are infiltrated with cells of the lymphocytic variety. In some of the severe cases there are small areas of hemorrhage. The brain cells do not show any signs of degeneration, except in areas of diffuse hemorrhage. Globus [7] points out that the so-called areas of demyelinization, frequently described, if examined carefully show the adventitial spaces distended with cellular infiltrations, thereby displacing the myelinated fibers and giving the appearance of demyelinization. Most observers have reported a glial proliferation, although Globus [7] believes that many of the cells are lymphocytic rather than glial.

There is a great diversity in the symptomatology in the reported cases. The onset is usually sudden, with such general symptoms as headache, vomiting, confusion, drowsiness, pyrexia, disturbance of the ocular muscles and convulsions. In some of the cases there are hyperesthesia, a spasticity of the muscles and muscular twitchings. There is a stiffness of the neck in most cases. The extremities are either flaccid or spastic and the reflexes variable.

The spinal fluid is clear under normal or increased pressure. The cells are increased and mostly lymphocytes. Globulin and sugar are increased. Cultures and smears are negative.

The blood examination, according to Peterman and Fox,[8] shows a consistent leukocytosis with a high polynucleosis.

I have been able to study five cases of nonsuppurative encephalitis during the past year. Three were associated with measles, one with infection of the upper respiratory tract, and one fatal case in which the etiology was unknown.

REPORT OF CASES

CASE 1.—F. E., a boy, aged 14 years, was seized with convulsions three days after the onset of measles, which were followed by apathy deepening into stupor. He was admitted to the hospital Jan. 30, 1935, in a stuporous condition. The examination showed the patient to be acutely ill, convulsive and comatose. The temperature was 105 F. The pulse was 110 and the respiration 28 and heavy. There was a general measles rash over the body. The pupils were small but reacted to light. Intra-ocular tension was reduced. The heart, lungs and abdomen were normal. There was a double Babinski reflex. The spinal fluid was clear and was under increased pressure. There were 42 cells per cubic millimeter, lymphocytes predominating. There was a moderate increase of globulin. Fehling's reduction for sugar was normal. Smears and cultures were negative for micro-organisms. The Wassermann reaction and Kahn test were negative. Urinalyses were negative. Blood nonprotein nitrogen was 35 mg. per hundred cubic centimeters. Blood sugar was 146 mg. No blood counts were made.

January 30 and 31, 10 cc. of the father's citrated blood was injected into the patient's buttocks.

The patient made an uneventful recovery and was discharged on the ninth day.

CASE 2.—W. B., a boy, aged 11 years, seen March 10, 1935, had begun having measles on the 7th. Three days later, meningeal symptoms developed. These consisted of frothing at the mouth, rolling of the eyes, convulsions, and fever of 103 F.

When examined, March 10, there was stiffness of the neck and a positive Babinski reflex. The pupils were equal and reacted to light. A distinct measles rash was present.

Lumbar puncture yielded a clear spinal fluid under increased pressure. There were 22 cells per cubic millimeter, mostly lymphocytes. The globulin was moderately increased. Smears and cultures were negative for organisms.

The white blood count was 13,100 per cubic millimeter, with 64 per cent polymorphonuclears. Urine examination was negative.

The following day 20 cc. of citrated blood from a boy 7 years old convalescing from measles was given to the patient in the buttocks.

The temperature returned to normal on the third day and the meningeal symptoms gradually subsided. He was discharged from the hospital March 17, completely recovered.

CASE 3.—R. T., a girl, aged 14 years, complained of a persistent headache five days after she came down with measles. The following day she was seized with convulsions and then went into deep coma. The examination showed that the patient was acutely ill. The temperature was 104 F., the pulse 128, and the respiration 48 and Cheyne-Stokes in character. She was in a deep stupor and was markedly cyanosed. The neck was rigid. The pupils were dilated and fixed. Kernig's sign was positive. There was a double Babinski reflex and a double ankle clonus. The lungs presented the signs of pulmonary edema. The heart was normal.

Lumbar puncture yielded a clear fluid, which was normal in pressure and contained 100 cells per cubic millimeter, with lymphocytes predominating. There was a moderate increase in globulin, and Fehling's reduction for sugar was normal. Smears and cultures were negative for micro-organisms.

Examination of the blood showed a hemoglobin of 81 per cent. The red blood count was 4,280,000 per cubic millimeter, the white blood count 11,800 with 72 per cent polymorphonuclears.

No treatment was given other than sedatives and the administration of oxygen. At the end of one week she had completely recovered.

These three cases of nonsuppurative encephalitis complicating measles seem to illustrate the typical clinical picture and course. The first two patients were given intramuscular injections of citrated blood. In the third case, which was the most severe, no treatment was given. The group is not large enough to warrant conclusions with regard to the value of citrated blood in the treatment of these cases.

CASE 4.—C. B., a white man, aged 64, admitted to the hospital April 11, 1935, complained of a sore throat for five days before his present illness. A few days later he was unable to walk, was drowsy and had a tingling sensation in his finger tips, which gradually increased for a period of five or six days until it covered the whole body. Hyperesthesia was marked. He complained of extreme photophobia and dysphagia. The temperature was normal, the pulse 81 and the respiration 16. The blood pressure was 130 systolic, 70 diastolic. Examination showed a drooping of the eyelids. The pupils were equal and reacted to light and in accommodation. There was a slight nystagmus in the extreme external positions and an apparent divergence in the extreme upper position. Diplopia was a persistent symptom. There was no disturbance in speech. His mind was clear but he appeared greatly depressed. There was a marked incoordination in the movements of his arms and legs. The knee jerks were absent. No other abnormal reflexes were noted. The heart and lungs were normal.

The spinal fluid was clear and under normal pressure. There was 1 cell per cubic millimeter. The globulin was slightly increased and Fehling's reduction for sugar was normal. The Wassermann reaction was negative.

There were 5,590,000 red blood cells per cubic millimeter and 14,000 white blood cells, with 58 per cent polymorphonuclears.

8. Peterman, M. G., and Fox, M. J.: Encephalitis as a Complication of Measles, Am. J. Dis. Child. **46**: 512 (Sept.) 1933.

The blood Wassermann reaction and Kahn precipitation tests were negative. Roentgen examination of the skull showed no pathologic changes.

Convalescence was slow and the patient was discharged considerably improved April 27.

This case demonstrated a focus of infection in the upper respiratory tract, with neurologic symptoms developing five days after the onset of the infection giving evidence of a diffuse encephalitis.

CASE 5.—M. M., a housewife, aged 25, admitted to the hospital May 15, 1935, was about five months pregnant. Her husband stated that when she got up in the morning she was very dizzy and went back to bed. A short time later she was apparently sleeping but could not be aroused. She had been perfectly healthy up to this time and had received no medication.

On examination the patient was in a deep stupor and markedly cyanosed. The throat was filled with mucus and there were signs of pulmonary edema. The temperature was 100 F., the pulse 80 and the respiration 20. The blood pressure was 110 systolic, 60 diastolic. The pupils were dilated and fixed and there was a ptosis of the lids. The knee jerks were absent. There were no other abnormal reflexes. The heart was normal. She never regained consciousness and died on the fourth day. The rectal temperature just before death was 108 F.

The spinal fluid was entirely normal, including a negative culture and Kahn reaction and contained only 4 cells. Blood examination showed 81 per cent hemoglobin, 4,110,000 red blood cells per cubic millimeter and 8,800 white blood cells, with 84 per cent polymorphonuclears. The blood sugar was 125 mg. per hundred cubic centimeters, the blood urea 11 mg. The urine was normal except for a trace of sugar.

The autopsy was limited to an examination of the brain, which was normal in size and shape but rather soft. There was a marked congestion of the vessels of the leptomeninges, and edema was present. The convolutions were flattened and the sulci shallow. At the base of the brain there was an extensive hemorrhagic exudate. The vessels of the brain showed no evidence of sclerosis. The cut surface showed numerous tiny punctate hemorrhages, which were confined to the white matter.

Microscopic examination showed edema and fibrosis of the meninges, but no cellular infiltration. The blood vessels were congested and dilated. No specific changes were noted in the ganglion cells. The small blood vessels of the cortex were dilated and showed an occasional perivascular infiltration of lymphocytes. The lining cells of the vessels were swollen and there was a tendency toward the presence of vessel groups. There was a moderate gliosis.

This patient, a young adult, although pregnant, had been perfectly healthy up to the time of the present illness. The onset was sudden, with vertigo and rapid loss of consciousness. There was nothing in the physical examination or laboratory studies to indicate the cause of the cerebral symptoms.

At autopsy there were numerous small petechial hemorrhages situated mainly in the white matter of the brain, together with congestion of the meninges and the presence of edema.

The pathologic condition suggested a brain reaction as part of a severe toxemia, although the origin was undetermined. A diagnosis of acute hemorrhagic encephalitis was made.

SUMMARY

Nonsuppurative encephalitis appears to be a definite clinical entity that has been comparatively rare until within the last decade.

The condition occurs principally as the result of infections or intoxications.

In five clinical cases the observations do not differ essentially from other cases previously reported in the literature.

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RUPTURE OF THE URINARY BLADDER ASSOCIATED WITH PROSTATIC HYPERTROPHY

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LOS ANGELES

Rupture of the urinary bladder occurs rarely; it is usually difficult to recognize and the mortality is still high, even in this period of accurate urologic diagnosis and skilful surgery.

In the early days of surgery many famous physicians were concerned seriously with the study and treatment of rupture of the bladder. Hippocrates [1] stated in his writings that a severe wound of the bladder was deadly. Galen [2] in later years, commenting on the aphorisms of Hippocrates, states that this term "deadly" meant a very dangerous wound but not necessarily a fatal one. Besley [3] states that until the end of the sixteenth century the authority of Hippocrates was so strong that no one would have been bold enough to report a case of recovery. No one expected patients with bladder rupture to recover, and usually they did not. Even up to the time of the elder Larrey,[2] the famous surgeon of Napoleon's time, the opinion of Hippocrates was universally accepted. Larrey reports that the old grenadiers of the empire, accustomed to be under fire, not troubled with diuresis or incontinence before a battle as were the new conscripts, and even forgetting to empty their bladders in their ardor to fight, were much more commonly seen with ruptured bladders. Other men such as Velpeau,[2] von Mikulicz,[4] Dupuytren [2] and later, in our country, Otis,[4] Keen [5] and Ashhurst,[6] all reported cases or offered suggestions for the relief of a condition that usually resulted in certain death. The English surgeon Syme [2] was the first (1848) to make a successful surgical intervention for the relief of an intraperitoneal rupture.

ETIOLOGY

The factors usually associated in producing rupture of the bladder are distention, a variable type of trauma, and not infrequently an associated mental or alcoholic incompetence. Cases of bladder rupture are divided into two groups, depending on whether the rupture occurs intraperitoneally or extraperitoneally.

Berndt,[7] in experiments on cadavers, found that rupture caused by intravesical fluid pressure alone most commonly resulted in extraperitoneal tear. In twenty-four cadavers in which rupture was caused by a blow on a full bladder, the rupture was extraperitoneal in nineteen and intraperitoneal in five. Von Dittel,[8] who carried out a somewhat similar series of experiments, found that, when rupture was caused by a simple distention with water, half of the cases ruptured into the peritoneal cavity and the other half extraperitoneally. If distended by air, the rent almost always occurred intraperitoneally.

1. Hippocrates: The Genuine Works of Hippocrates, translated by Francis Adams, New York, William Wood & Co., 1886.
2. Cited by Dambrin and Papin.[32]
3. Besley, F. A.: Rupture of the Urinary Bladder, Surg., Gynec. & Obst. **4**: 514-532, 1907.
4. Cited by Besley.[3]
5. Keen, W. W.: New Means of Ascertaining Whether the Bladder Is Ruptured, Ann. Surg. **12**: 36, 1890.
6. Ashhurst, A.: Traumatic Intraperitoneal Rupture of the Bladder with a Report of Two Cases and an Analysis of 110 Cases Treated by Laparotomy, Am. J. M. Sc. **132**: 17-37, 1906.
7. Berndt, F.: Experimentelle Untersuchungen über Harnblasenruptur, Arch. f. Chir. **58**: 815-839, 1899.
8. von Dittel: Gegen die Füllung der Blase zum hohen Blasenschnitte, Wien. med. Wchnschr. **36**: 1505-1539, 1886.

In a small group of cases, rupture occurs without external violence, usually following distention caused by obstruction to the urinary outflow; in most of these cases there is also an associated disease of the bladder wall. In a number of cases rupture occurred as the result of some interference with the nerve supply of the bladder; namely, a spasmodic or paralytic closure of the bladder outlet. White and Wigram [9] reported a case of extraperitoneal rupture into the abdominal wall in a patient with complete paralysis of the bladder, and Herting [10] cites three cases of nontraumatic paralytic rupture. Frieberg [11] reported a case of intraperitoneal rupture from overdistention without injury in a tabetic patient; 3.5 liters of fluid was obtained through a catheter inserted urethrally. Regarding paralytic rupture, Morel [12] states that there are two factors working when rupture occurs as a result of paralysis; toleration of the bladder, which permits it to dilate, and degeneration of the bladder muscles so that they offer very little resistance to the distention.

In a number of cases rupture occurred directly as a result of some disease of the bladder wall which weakened it. Hedran [13] reported a case in which spontaneous rupture occurred through an area of fatty degeneration of the bladder wall; autopsy showed that this patient also had a syphilitic aortitis. Castaigne [14] noted a case in which the rupture was through a simple ulcer of the posterior wall. Ludwig [4] described a case of spontaneous perforation through the bladder wall in an area occupied by a papillary tumor. Crosbie [15] reported a spontaneous case through a bladder wall weakened by an infiltrating carcinoma. In a case of Bitschai's,[16] in which there was a tumor in the base of the bladder, a perforation occurred through the upper posterior wall into the peritoneal cavity. There was no bladder muscle at the site of perforation, the area having been replaced by inflammatory connective tissue. Goldenberg [17] reported two cases in which the sudden muscular compression of the abdominal muscles resulting from lifting heavy objects caused intraperitoneal ruptures. Mailland [18] described a case of rupture secondary to pressure necrosis of the bladder wall from a uterine fibroma. Chattaway [19] reported the case of a woman four months pregnant who had a spontaneous intraperitoneal bladder rupture following forty-eight hours of urinary retention; 1 gallon of urine was removed from the abdominal cavity.

In some cases rupture, while not caused by external trauma or violence, is nevertheless the result of influences outside the bladder itself and is not in the true sense a spontaneous occurrence. Such may occasionally follow diagnostic and therapeutic procedures on the bladder. Rupture has not infrequently occurred from overdistention during a cystoscopy; general and spinal are not as safe as sacral anesthesia for these cases, because in sacral anesthesia the pain sense from overdistention is not completely lost. Wagner [20] reports six cases of rupture after the injection of fluids into the bladder, and Neve [21] noted that rupture occurred following the injection of only 270 cc. of fluid preparatory to doing a litholapaxy. Cassuto [22] described a case in which rupture of the bladder resulted from an intravesical explosion of the gases accumulated from fulguration of the bladder neck. Saint Cene,[23] who reported two analogous cases, found that the explosion took place on fulgurating near the upper surfaces of the bladder where gas accumulates. Kretschmer [24] recently reported two cases of intravesical explosion with rupture of the bladder during transurethral electroresection of the prostate.

Occasionally a case is described in which rupture seems to be the result of mechanical obstruction alone. King [4] reports a case of bladder rupture occurring in a fetus with an imperforate urethra, and Sisk [25] quotes a case of Talboy's in which rupture occurred as a result of unrelieved phimosis. Rather exceptionally rupture of the bladder is seen in association with stricture of the urethra or prostatic obstruction. In both these conditions there is usually an associated cystitis and a degeneration of the musculature of the bladder wall. Sisk [25] reported a case of spontaneous extraperitoneal rupture of the bladder as a result of obstruction to the urinary outflow by a urethral stricture that had been present since childhood. Similar cases have been reported by Lejar [2] and Besley.[3]

Cases in which rupture of the bladder occurred in association with prostatic hypertrophy are very rare, but references to such conditions are occasionally seen in the literature. Rupture in such cases is primarily due to obstruction at the bladder neck and secondarily increased intravesical pressure, plus degenerative changes in the bladder wall. Moser [26] reports the case of a man, aged 59, in whom rupture occurred as a result of long-standing dilatation of the bladder caused by hypertrophy of the prostate.

The following case is one in which prostatic obstruction caused a chronic distention of the bladder, cystitis, disease of the bladder wall and, finally, a rupture into the extraperitoneal tissues:

REPORT OF CASE

A man, aged 76, had been having difficulty in urination during the last three years. There was frequency and nocturia every hour, and it was usually necessary to strain considerably to empty the bladder even partially. He had had some dribbling for a year, but during the last six months there had been a gradually increasing incontinence; for the last three months he passed no urine except that which dribbled out. During this time he was in bed most of the time and found it necessary to make some effort to force out a little urine every hour or two during the day or night. Seven days before admission he had, as he expressed it, a "gripe in the abdomen," since which

9. White, S., and Wigram, N. J.: A Case of Spontaneous Rupture of the Urinary Bladder, Brit. J. Surg. **4**: 324-325 (Oct.) 1916.
10. Herting: Drei Fälle nicht traumatischer Blasenruptur bei paralyt Geisterkranker, Arch. f. Psychiat. **27**: 541-553, 1895.
11. Frieberg, T.: Ein Fall von spontaner Blasenruptur und Veränderungen der elastischen Substanz, Virchows Arch. f. path. Anat. **202**: 268-272, 1910.
12. Morel, L.: Contribution a l'étude des ruptures traumatiques de la vessie, Ann. d. mal. d. org. génito-urin. **24**: 801-810, 1906.
13. Hedran, G.: Lipomatosis der harnblase mit nicht traumatischer Ruptur derselben, Arch. f. klin. Chir. **82**: 1018-1022, 1907.
14. Castaigne, J.: Ulcére simple de la vessie; hematuries très abondantes et perforation vésicale, Bull. et mém. Soc. anat. de Paris, 1899, pp. 230-239.
15. Crosbie, A. H.: Rupture of Urinary Bladder, J. Urol. **12**: 431-437 (Oct.) 1924.
16. Bitschai, J.: Spontanruptur der Blase, Ztschr. f. Urol. **21**: 461, 1927.
17. Goldenberg, T.: Beitrag zur Pathologie des Harnblasenrupturen, Beitr. z. klin. Chir. **61**: 350-371, 1909.
18. Mailland: Rupture brusque de vessie, consecutif à la compression exercée par un fibrom utérine, Gaz. d. hôp. **74**: 1109-1110, 1901.
19. Chattaway, D., and Graham, L.: A Case of Intraperitoneal Rupture of the Bladder Due to Retroversion of the Gravid Uterus, Lancet **2**: 754 (Oct. 8) 1921.
20. Wagner, R.: Ueber nicht traumatische Perforation der Blase und ihre Folgezustande, Arch. f. klin. Chir. **44**: 303-368, 1892.
21. Neve, E.: Vesical Calculus and Rupture of Bladder, Brit. M. J. **2**: 1543, 1899.
22. Cassuto, A.: Explosion dans la vessie au cours d'une electrocoagulation, J. d'urol. **22**: 263 (Oct.) 1926.
23. Saint Cene, cited by Cassuto.[22]
24. Kretschmer, H. L.: Intravesical Explosions as a Complication of Transurethral Electroresection, J. A. M. A. **103**: 1144-1145 (Oct. 13) 1934.
25. Sisk, I. R., and Wear, J. B.: Spontaneous Rupture of the Urinary Bladder, J. Urol. **21**: 517 (April) 1929.
26. Moser, E.: Spontane Harnblasenzerreissung, Deutsche Ztschr. f. Chir. **132**: 103-123, 1914.

time he had had constant abdominal pain and tenderness and a mass in the lower part of the abdomen which gradually increased in size and was at this time the size of a grapefruit. He had been catheterized only once, shortly before coming to the hospital.

On entry into the hospital the temperature was 96 F., the pulse 84, and the blood pressure 120 systolic and 70 diastolic. The pupils reacted normally and the other reflexes were not unusual. He was in moderate shock but roused readily when questioned. The lungs were clear and the heart regular, with faint sounds and no murmur. The arteries were tortuous and sclerosed but compressible. The bladder was markedly distended and on the abdominal wall above the pubes a hard, rounded, nonfluctuant fixed mass, about 8 cm. in diameter, could be felt. After catheterization of the bladder the mass was slightly less prominent and more freely movable but apparently did not diminish in size. Thirty ounces (887 cc.) of cloudy, foul-smelling urine was removed with the catheter. The catheter was fastened into the urethra and left in place. The prostate was about twice the normal size, firm, fixed and rounded but not irregular or exceptionally hard.

The urine contained a large amount of pus, blood and albumin, but no sugar. An examination of the blood showed a hemoglobin of 48 per cent; and each millimeter of blood contained 3,200,000 red blood cells and 21,000 leukocytes, 83 per cent of which were polymorphonuclear cells. Roentgen examination of the kidneys, ureters and bladder revealed nothing unusual except an area of increased density in the region of the suprapubic mass. A Wassermann test on the blood was negative.

Two conditions presented themselves for consideration: a cystic formation of the lower end of the urachus or a ruptured bladder. The latter diagnosis seemed substantiated by the long history of urinary difficulty, the sudden onset of the tumor and the bladder neck obstruction. The patient was in moderate shock and the urinary retention was satisfactorily relieved by the inlying urethral catheter; consequently only a simple incision and drainage of the mass appeared to be necessary. The patient was taken to the operating room and, under a local anesthetic, a midline incision was made in the suprapubic mass. Between the muscles and the overlying fascia there was a collection of about 4 ounces (118 cc.) of foul, highly infected urine. The area was drained and the wound closed loosely. The bladder was not exposed and no urine was seen oozing into the wound, as the bladder was kept empty by means of the urethral catheter. As the patient was somewhat in shock, nothing further was done. He recovered rapidly from the operation and several days later the two-hour intravenously injected phenolsulfonphthalein was 15 per cent: 5 per cent the first hour and 10 per cent the second. Five days after this it was 25 per cent for the two-hour period. The wound healed readily, and the patient's general condition became improved. An electrocardiogram showed indications of myocardial changes and gave a suggestion of generalized arteriosclerosis.

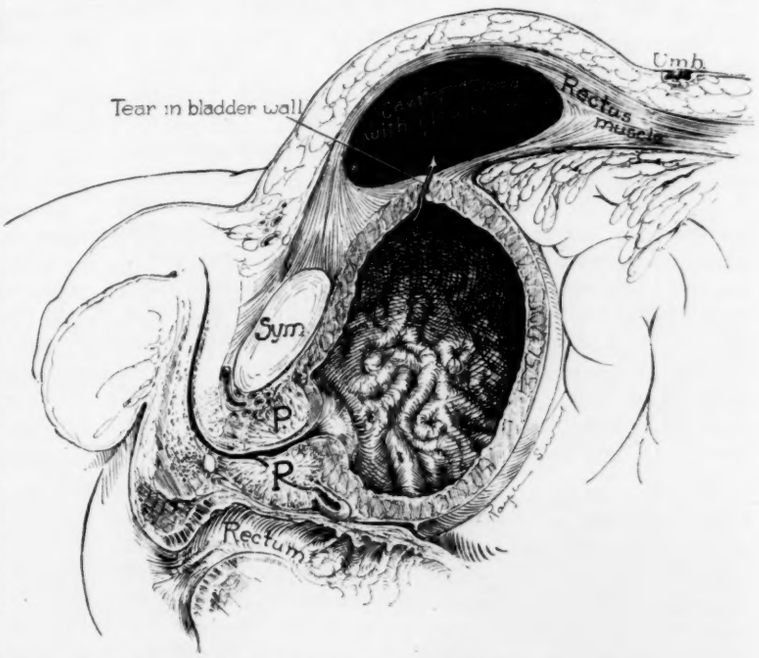
Cysto-urethroscopy revealed an enlargement of the lateral lobes of the prostate (2 on a scale of 1 to 4), together with an enlarged middle lobe. The bladder wall was markedly trabeculated, and there were many small cellules. In the anterior upper wall of the bladder there was an area of inflammation about 2 cm. in diameter, in the center of which were several linear tears or scars.

As the patient did not readily tolerate a permanent urethral catheter, it was removed after a few days and suprapubic drainage was instituted under a local anesthetic. The skin and fascia were cut and the muscles retracted. The peritoneum and structures overlying the bladder were matted down, thickened, adherent and friable but stripped from the surface of the bladder without much difficulty. No evidence was found of an open urachus or of anything resembling the urachus. The area through which the bladder had opened into the overlying tissues could be readily made out, but no fluid was coming through at this time. The bladder wall was very friable and at least 1 cm. thick. It was incised with a knife and a No. 30 Pezzer tube fixed in place. Exploration of the bladder revealed nothing unusual but the enlarged prostate.

The bladder was closed and the patient made a good operative recovery. He left the hospital two weeks later to go home, the suprapubic tube being still in place. He returned one month later for prostatectomy.

DIAGNOSIS

Patients with traumatic bladder rupture generally have severe pain in the lower part of the abdomen at the time of injury. This pain is continuous and is associated with vesical tenesmus, and usually the patient is in moderate shock. The symptoms in cases of spontaneous rupture differ very little from those in which rupture is caused by trauma. Spontaneous rupture is more likely to occur in elderly individuals with a history of prolonged bladder trouble. Generally in cases of rupture there is a strong desire but inability to urinate, or only a few drops of blood may pass. In some cases voiding may be quite free, the urine being blood tinged. Besley [3] noted that the patient is usually unable to walk



Rupture of bladder wall opening into extraperitoneal tissues.

or does so with difficulty and that at the time of injury there is a sense of something giving way or tearing in the lower part of the abdomen.

If the rupture is extraperitoneal there is usually pain and swelling in the suprapubic area, and there may be signs of extravasation such as brawny edema or pitting of the tissues. The patient becomes septic and at times has chills and fever. Intraperitoneal ruptures, which, unfortunately, are the more common type, are more serious and at times quite difficult to recognize. Symptoms of peritonitis, such as abdominal tenderness and muscular rigidity, appear early, and later vomiting and obstipation. On the other hand, a number of cases of intraperitoneal rupture have been reported in which the abdominal cavity was filled with urine for several days without signs of peritonitis.

In early reports of cases the catheter test and the injection test are frequently mentioned. These tests are still used quite as a routine and at times may be of value. The patient may be catheterized and no urine or only a small amount of bloody urine obtained, or possibly an amount is withdrawn much greater than

could be contained in a bladder of normal size. No urine or a large amount of urine from an individual who has not voided for a considerable time is added evidence of rupture of the bladder. The bladder opening may have permitted the urine to escape into the peritoneal cavity, from which it cannot be withdrawn, or there may be such a large tear in the bladder wall that a free flow back and forth is possible. In some cases extremely large amounts may be withdrawn; Freiberg drained off more than 3 liters by catheter. In the injection test a measured amount of solution is injected into the bladder and then withdrawn, a smaller or larger return suggesting either a loss or a gain in fluid through an opening in the wall.

Cystoscopy in some cases is of little value on account of inability to distend and fill the bladder with fluid; or visualization may be decreased by extensive bleeding. Mathé [27] states that small tears may be overlooked with the cystoscope, as the tear usually does not extend straight through the bladder wall, like an incision made by the scalpel, but extends in and on different planes between the muscle layers.

Cystography, following the simple injection of a medium opaque to x-rays, will usually give definite and accurate information as to the condition present. Roentgenography, following the injection of air after removal of most of the opaque medium from the bladder, gives a good contrast picture, usually indicating the condition of the bladder, the location and, at times, the extent of the lesion present. Mark,[28] observing the innocuousness of mediums for intravenous urography, has used this medium in a case of extraperitoneal rupture of the bladder, being able not only to diagnose the condition correctly but to note accurately the location of the lesion. This procedure, while useful in some cases, is of little value in the presence of shock, as the medium is not readily excreted by the kidneys.

TREATMENT

The treatment in both the intraperitoneal and the extraperitoneal types of rupture is usually immediate operation. This condition is a surgical emergency, and delay, particularly when rupture into the peritoneal cavity has occurred, is as dangerous as in the case of any other acute abdominal lesion. When the tear has been through the peritoneum the abdomen is opened, the bulk of the fluid is withdrawn by suction and the rent in the bladder is closed. Both the peritoneal cavity and the bladder are then adequately drained. In some cases, as shown by Crosbie,[15] if the bladder tear is small it need not be sutured, as it will close itself when proper drainage of the bladder is provided. In the extraperitoneal type of rupture the main procedure is bladder drainage, together with drainage of any perivesical pockets or areas of extravasation. Usually individuals with rupture of the bladder are in poor general condition, and rapid, accurate operation is necessary, only what is absolutely essential at that time being done.

MORTALITY

The mortality, even of uncomplicated rupture of the bladder, always has been and still is very high. Complications and coincidental injuries in the traumatic cases greatly increase the severity of the condition.

Bartels [29] in 1878 reported a mortality of 96 per cent in ninety-eight patients treated without operation. Rivington [30] in 1884 collected 300 cases; thirty-eight patients recovered, of which number thirty were in the smaller group of extraperitoneal ruptures. Although the other eight were described as being intraperitoneal cases, Rivington questions the diagnosis, believing them also to be extraperitoneal in type. This illustrates the attitude at that time toward the extreme rarity of recovery in cases of intraperitoneal rupture. Seldowitsch [31] in 1904 reviewed thirty-four cases from the Russian literature. Twenty-eight (87.5 per cent) ended fatally. Also fifteen patients who were not operated on died. In the same year Dambrin and Papin [32] in France collected and analyzed seventy-eight cases in which operation was done for intraperitoneal rupture; thirty-four (43.5 per cent) of the patients died. Thirty-four patients of this series had been operated on since 1895; of these only seven (23 per cent) died. Negley [33] in 1927 reviewed thirty-four cases from the Los Angeles General Hospital. Fourteen cases were of extraperitoneal rupture; four patients died, a mortality of 28.6 per cent. There were twenty cases of intraperitoneal rupture; four patients died, a mortality of 20 per cent. In 1929 Campbell [34] reported fifty-five cases from Bellevue Hospital; thirty-five (63.6 per cent) patients died. Of the patients suffering from intraperitoneal involvement, twenty-six (73.5 per cent) died; only nine (42.9 per cent) of those with extraperitoneal involvement died.

Besley [3] stated in 1907: "No one condition seems better to illustrate the advances that have been made in modern surgical work than the results now obtained in the treatment of rupture of the bladder." In the early days of surgery almost all patients died. The abdomen was not opened without fear of peritonitis, and consequently many patients were not operated on. The associated lesions and complications took their toll and, all in all, rupture of the bladder was a very serious condition. Since Besley made his statement, progress in surgery has been much better illustrated by operative results on organs other than the bladder. The present mortality, while still very high, is mainly due to the tremendous shock and the coincidental lesions, conditions placing the patient beyond help when first seen. In only a small part is the high mortality now due to delayed or unskilful procedures. In uncomplicated cases, when operation is early, the prognosis, both for intraperitoneal and for extraperitoneal rupture of the bladder, should be fairly good.

Pacific Mutual Building.

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Deformed Bones in Spite of Vitamin D.—Normal bones can be formed only when the food contains ample amounts of calcium and phosphorus. In the case of a lesser supply, either vitamin D or ultraviolet light is capable of preventing the occurrence of rickets, but normal bone will not form. It will always contain less than the normal per cent of calcium phosphate. If the dietary calcium or phosphorus is sharply restricted, deformed, easily fractured bones will result in spite of large intakes of the vitamin.—Newburgh, L. H., and Mackinnon, Frances: The Practice of Dietetics, New York, Macmillan Company, 1934.

Clinical Notes, Suggestions and New Instruments

PARALYSIS OF THE AXILLARY (CIRCUMFLEX) NERVE WITH SPONTANEOUS RECOVERY AFTER SEVEN MONTHS

SIDNEY HIRSCH, M.D., NEW YORK
Senior Clinical Surgical Assistant to the Mount Sinai Hospital, New York; Surgical Adjunct, Trinity Hospital, Brooklyn

The unusual etiology of paralysis of the axillary (circumflex) nerve with the resultant clinical problems prompts me to report this case.

The exposed position of the axillary nerve in its winding course around the outer aspect of the humerus makes it particularly liable to injury. It can easily be torn or compressed in fractures of the surgical neck of the humerus or in dislocations of the shoulder joint. Even then total division of the nerve is rare, the sheath retaining its continuity although some of the axis cylinders may have given way. The nerve may easily be contused by blows on the shoulder. If paralysis of the axillary nerve results, it is manifested by the inability to abduct the arm from the side because of the loss of motor power to the deltoid and teres minor muscles. Slight elevation of the arm may be accomplished by the supraspinatus muscle. There is also loss of sensation over the cutaneous distribution of the nerve involving the skin over the long head of the triceps and lower posterior part of the deltoid. The arm is held in adduction by the unopposed pectoralis major, the latissimus dorsi and the subscapularis muscles.

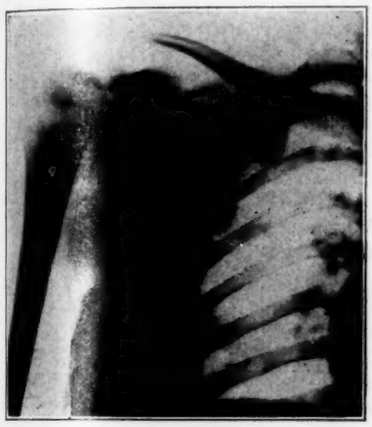

Fig. 1.—Roentgen appearance immediately after accident, showing comminuted stellate fracture of the right scapula and fracture of the acromial end of the clavicle. The line below the head of the humerus is the natural epiphyseal line.

ANATOMY

The circumflex nerve arises from the posterior cord of the brachial plexus and consists of fibers from the dorsal divisions of the fifth and sixth cervical nerves. It passes downward and outward behind the third portion of the axillary artery and over the outer border of the subscapularis muscle to enter the quadrilateral space together with the posterior circumflex artery and vein, which lie above the nerve. It then turns about the posterior and external surface of the surgical neck of the humerus to end within the deltoid muscle.

The nerve consists of two main bundles, the larger medial funiculus supplying the teres minor and a part of the spinal portion of the deltoid after which it passes under the deltoid and around the lower part of the posterior border to supply the skin over the long head of the triceps and the lower two thirds of the posterior part of the deltoid. The lateral branch gives off the articular branch to the shoulder joint and supplies the remaining portions of the deltoid.

REPORT OF CASE

J. G., a well developed girl, aged 14 years, was accidentally thrown off her horse, Oct. 20, 1934, and was unconscious for a few moments. I saw her one half hour after the accident when a physical examination revealed exquisite tenderness over the acromial end of the right clavicle and tenderness and bony crepitus over the right scapula.

I did not attempt to lift her right shoulder, nor did I ask the patient to do it.

The diagnosis was fracture of the right clavicle and comminuted fracture of the right scapula.

This diagnosis was verified by roentgen studies (fig. 1). Since the fragments were in excellent position, I applied a simple Velpeau bandage for immobilization. At the end of two weeks I commenced baking and massage. At the end of the third week I began mild passive motion. At the end of the fifth week I discovered that attempts at active abduction of the shoulder were futile and that passive abduction beyond 60 degrees caused pain. I ascribed the limitation of motion to the pain and this in turn to the fracture. Check up roentgenograms revealed good healing with the fragments well approximated and with no excessive callus (fig. 2). At the end of the seventh week, when attempts at active abduction were still unsuccessful, I investigated further. I found that there was some atrophy of the right deltoid muscle, the roundness of the shoulder having disappeared, causing undue prominence of the acromion and coracoid processes. There was also flattening in the outer infraspinatous region.

Sensory examination showed complete anesthesia to pin prick and moderate degrees of temperature over the cutaneous distribution of the fifth and sixth cervical branches comprising the axillary nerve, with a somewhat wider area of anesthesia to cotton wool (fig. 3).

Electrical stimulation showed absent response of the deltoid muscle to faradic current with definite though sluggish response to galvanic current. No attempt was made to determine reaction difference to anodal or cathodal polar closure.

All this information proved the absence of axillary nerve conductivity. The arm was immediately placed in a cast with abduction to about 100 degrees, the forearm pointing upward. Sinusoidal treatment with gentle massage to the deltoid region was begun and given every second day. At the same time the shoulder joint was kept supple by manipulation and movement above the 90 degree angle.

By February 1935 there were still no signs of sensory or motor improvement. An orthopedic consultant felt that sufficient time had been allowed for conservative therapy. Since there was no improvement he urgently favored exploration. He stated that in spite of the surgical difficulties involved in exposing the axillary nerve it gave the patient her only hope for restoration. He was not sure in what part of the nerve's course he would find the loss of continuity, but he felt that the best exposure would be at its emergence from the quadrilateral space before it winds about the humerus.

Fig. 2.—Roentgen appearance Nov. 19, 1934, about four weeks after the accident, showing excellent healing.

A neurologic consultant felt that although we had waited the customary four months for evidences of regeneration, he would still wait an additional two to three months. The type of injury, a blow and not an incised wound, and the absence of any fracture of the neck or shaft of the humerus prompted this attitude. In addition, there was some deep muscle tenderness which he felt was a definite indication of the presence of some nerve conductivity. He also knew of a large number of cases in which no evidences of regeneration were shown for eight or nine months after injury and which then went on to recovery. He felt that the maintenance of circulation and nutrition of the paralyzed muscles by continuous massage and electricity would offset the bad effect of a long interval between injury and operation, if operation ever had to be done.

It was the type of case in which it was impossible to make certain that the nerve had actually been divided and that the

various sensory and motor changes were not due to concussion or partial laceration from which a recovery might still be expected. I definitely felt, together with the neurologist, that operation was only hazardous and could more than justifiably be delayed.

The passage of another two months bore out the wisdom of the conservative attitude. There was definite evidence of sensory return by a shrinking of the area of anesthesia to pin prick, cotton wool and changes of temperature.

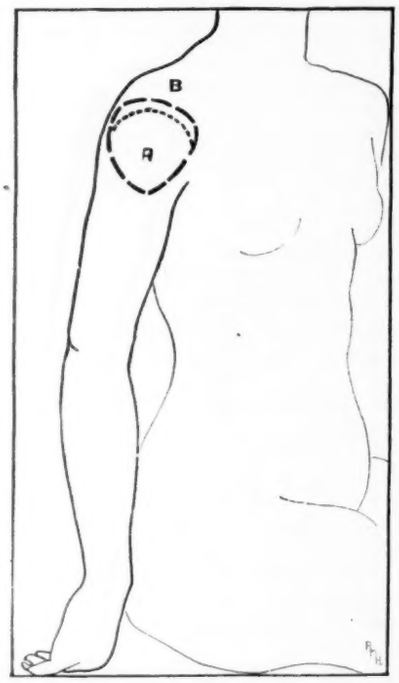

Fig. 3.—*A*, area of anesthesia to pin prick, moderate degrees of temperature and cotton wool. *B*, additional area of anesthesia to cotton wool.

In April 1935 the sensory anesthesia was only one half the original, although there was still no evidence of motor return. Motion is generally much later in its restoration than sensation. At this time contrast (hot and cold) applications to the deltoid region were begun and continued as a bidaily treatment in addition to the other measures.

About May 15, seven months after the original injury, it was observed that the patient was able actively to abduct her shoulder. About this time the area of anesthesia to cotton wool had completely disappeared, that to pin prick had only a few very small areas of disturbed but not absent sensation and that to hot and cold testing had recovered about 90 per cent.

At this writing, July, there is no remaining disturbance of sensation. The muscle tone of the deltoid has improved considerably and the patient is able actively to abduct the shoulder completely. She is still wearing the airplane brace and is still receiving the treatment.

145 West Eighty-Sixth Street.

DERMATITIS OF THE PENIS CAUSED BY EPHEDRINE

LESTER HOLLANDER, M.D., PITTSBURGH

Instances of sensitivity to ephedrine have been noted previously, and the occurrence itself would be unworthy of report. The fact of a curiously distant localized sensitivity and the manner by which the irritating substance reached the affected area may be of sufficient interest to warrant recording the following case:

K. K., aged 42, consulted me Sept. 10, 1934, on account of a swelling and redness of the prepuce and the under surface of the shaft of the penis. On a somewhat elongated area of the anterior and under surface of the penis, a few discrete vesicles were discernible. The patient was most uncomfortable because of the itching and burning and on account of the difficulty that he experienced during micturition, the intense edema interfering with the passage of the urine. The condition was of one week's duration and it was steadily getting worse.

The usual causes producing a contact dermatitis in this location, such as contraceptives containing quinine, condoms and chemicals (saponated solution of cresol) used as vaginal disinfectants were inquired for, but there was no history of the use of these or the exposure to them.

The patient was put to bed and a greatly diluted solution of aluminum acetate dressing was applied. The inflammation subsided readily as a result of this treatment.

A few days later, however, the previous symptoms recurred with great severity. Requestioning elicited the fact that the patient was using a hair preparation containing quinine, and I accepted this as the most likely agent causing the sensitivity, the irritant reaching the affected part through the medium of the fingers. The presence of the small discrete vesicles on the under surface of the anterior part of the penis, where the organ is held during urination, strengthened this hypothesis. Patch testing on the arm gave entirely negative results.

Reemployment of the previous treatment again yielded good results. When the inflammation had totally subsided, treatment was discontinued and the patient was instructed to wash his hands thoroughly before urination.

No further trouble was experienced until Sept. 8, 1935, when the patient reappeared for examination with the same eruption in the same location. This time the coincidence of the season of the year was noted, and his history was retaken, which brought out the fact that he was subject to early fall hay fever. This was missed entirely on previous questioning, as the patient had had only a mild attack of hay fever.

In going into the question of medication of his hay fever, it was found that he was using an ephedrine nasal spray quite frequently, and also that he had long discontinued to wash his hands before urination.

After the dermatitis of the penis had totally disappeared, a patch test of the ephedrine spray was applied to the arm with completely negative results. Then a 1:50 dilution of the ephedrine nasal preparation was sprayed on the penis, creating an intense reaction and thus proving the local sensitivity, which was somewhat baffling for a time.

This case illustrates:

1. A local sensitivity that cannot be proved with patch testing unless the test is applied directly to a previously affected area.

2. That strict attention must be paid to a history of all factors involved: the causative agent was missed one year before because of failure to inquire regarding hay fever and its treatment.

631 Jenkins Building.

Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION OF THE FOLLOWING ARTICLE.

HOWARD A. CARTER, Secretary.

GOULD NEGATIVE ION PROCESS NOT ACCEPTABLE

Manufacturer: Gould Negative Ion Company, Boston.

The company claims that "the negative ion process is an atmospheric electrical treatment, and is unlike any other kind of electrical therapy."

The following description of the negative ion process as produced with the Gould apparatus is copied from a booklet distributed by the firm:

"Ozone is formed and reacts with unsaturated molecules of a special grade of oil, which produces an ozonide-aldehyde.

"Positive ions are removed by means of a negative voltage potential. The air containing negative ions is driven onto the surface of the oil by a power driven fan, which fixes the negative ions on neutral molecules. Thus there are ozonide-aldehyde vapors, free negative ions, and negative ions fixed on neutral oil molecules, which are flowing from the vaporizing chamber to the organism being treated.

"A positive voltage potential is placed on the body, the negative end of the circuit being connected to a part of the apparatus. Thus the organism becomes the anode and the apparatus the cathode of a circuit composed in part of the flow of negative ions from the vaporizer. The placing of the positive voltage potential on the body causes it to become selective to the negative ions, which are electrostatically attracted. Its purpose is also to separate the negative ion from the neutral molecule.

"The negative ion upon being detached from the molecule enters the organism and flows towards the positive voltage potential. The position of the positive potential on the organism seems to have a marked effect on the results obtained. Clothing, and especially silk, will extract the ions to a certain extent, thus preventing their entry into the body. Accordingly, the practice should be to have the patient disrobe as much as possible, and avoid silk in any form.

"To obtain the best results from the process, the patient should be treated from one to not more than two hours."

Many therapeutic claims are made for the Gould Negative Ion Process. Some of these claims appear in the following excerpts from the company's advertising matter:

"The blood is affected in all diseases. This process revitalizes the blood stream; it charges the blood with a normal supply of oxygen, thereby allowing the Red Blood Cells and the Hemoglobin to form its natural combination with oxygen, which increases the oxidation activity of the blood stream. The White Cells will return to normal faster than the Red Cells.

"After a few treatments by this process the general physical condition of the patient is noticeably improved. It stimulates the action of the intestines, resulting in more regular evacuations.

"The process is harmless, it consists of visible vapor (not a medicine), that kills contagious and infectious germs.

"PARTIAL LIST of Diseases Treated—This process has proven successful in treating Asthma and all respiratory diseases, Hypertension, Sinusitis, Rhinitis, Varicose Ulcer, Pyorrhea, Vincents Angina, Chronic Constipation, Nervous Disorders, some Skin Diseases and Arthritis. It gives almost immediate relief to sufferers from Hay Fever, and the relief lasts throughout the season."

Critical or convincing evidence to substantiate the aforementioned therapeutic claims has not been made available to the Council on Physical Therapy. In the opinion of the Council, promotional literature of this kind constitutes an appeal to the public with arguments that have not been verified and may harmfully enhance the feeling of false security on the part of the persons acquiring the device and making use of the process.

In view of the lack of evidence to substantiate the claims made for the Gould Negative Ion Process and unit, the Council on Physical Therapy voted not to include the process and unit in its list of accepted devices.

JUNIOR BOVIE ELECTRO SURGICAL AND MEDICAL DIATHERMY UNIT ACCEPTABLE

Manufacturer: The Liebel-Flarsheim Company, Cincinnati.

This unit is designed for electrosurgery, but it may also be used for medical diathermy. Three types of current are available: cutting, coagulating and medical diathermy. It is provided with convenient switches, making these currents readily accessible. The power required to operate the machine at full load is approximately 300 watts. Its wavelength is about 600 meters. Figure 2 is a diagram of the circuit.

Fig. 1.—Junior Bovie Electro Surgical and Medical Diathermy Unit.

Evidence was submitted pertaining to the electrical and physical characteristics of the unit. The data showed that the temperature rises of the transformer and spark gap were within the limits adopted by the Council. An examination of the electrical circuit and the parts by the Council's investigator indicated that good material had been employed in the manufacture of this unit and the machine assembled in a workmanlike manner. Its shipping weight is: unit, 89 pounds; subcabinet, 60 pounds.

The performance of the apparatus was satisfactory, when used for seven months in a clinic acceptable to the Council, under the conditions for which it is recommended.

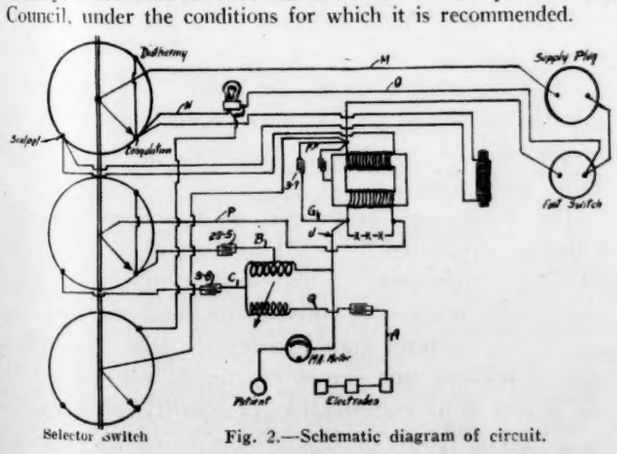

Fig. 2.—Schematic diagram of circuit.

In view of the favorable report, the Council voted to include the Junior Bovie Electro Surgical and Medical Diathermy Unit in its list of accepted devices.

Committee on Foods

ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COMMITTEE ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION, AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.

FRANKLIN C. BING, Secretary.

DOLE BRAND HAWAIIAN PINEAPPLE

NATURAL UNSWEETENED SLICED (PACKED IN UNSWEETENED JUICE)

Manufacturer.—Hawaiian Pineapple Company, Ltd., San Francisco.

Description.—Peeled, cored and sliced Hawaiian pineapple, processed and packed in undiluted pineapple juice.

Manufacture.—The method of manufacture is essentially the same as for Dole 1 Hawaiian canned pineapple slices (THE JOURNAL, April 8, 1933, p. 1106) except that unsweetened juice is used to fill the cans.

Analysis (submitted by manufacturer).—

	per cent
Moisture	83.5
Total solids	16.5
Ash	0.5
Fat (ether extract)	0.02
Protein (N × 6.25)	0.4
Reducing sugars as invert sugar	6.3
Sucrose	7.7
Crude fiber	0.3
Carbohydrates other than crude fiber (by difference)	14.4
Titratable acidity as citric acid	0.9

Calories.—0.6 per gram; 17 per ounce.

Vitamins.—Biologic assay shows canned pineapple to contain vitamin A and to be a good source of vitamins B and C. Practically equivalent to the fresh fruit in A and B; slightly inferior in C.

Claims of Manufacturer.—Fancy grade canned sliced pineapple representing fruit most uniform in color, flavor, texture and workmanship. Packed in undiluted pineapple juice without added sugar. The canned product is practically equivalent to the fresh fruit in nutritional values (vitamin C slightly reduced).

CELLU BRAND TOMATOES, WATER PACKED

Distributor.—Chicago Dietetic Supply House, Inc., Chicago.

Packer.—L. H. Schlecht, Rossville, Ill.

Description.—Canned whole peeled tomatoes, packed in water.

Manufacture.—Selected tomatoes are washed, inspected, sorted, scalded, hand peeled and packed in cans. The cans are filled with water, heated, sealed and processed.

Analysis (submitted by distributor).—

	per cent
Moisture	94.6
Total solids	5.4
Ash	0.5
Fat (ether extract)	0.4
Protein (N × 6.25)	0.8
Crude fiber	0.5
Starch (diastase method)	2.4
Carbohydrates other than crude fiber (by difference)	3.2

Calories.—0.2 per gram; 6 per ounce.

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Description.—Canned, unsweetened sterilized evaporated milk, the same as Carnation Milk (THE JOURNAL, June 14, 1930, p. 1919).

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, FEBRUARY 29, 1936

RECENT STUDIES ON POLIOMYELITIS

The second portion of an article on poliomyelitis, written by Biraud and Deutschman [1] and published in the Epidemiologic Report of the Health Section of the Secretariat of the League of Nations, summarizes recent additions to knowledge concerning this disease. The antigenic properties of poliomyelitis virus, they say, differentiate it clearly from the bacteria and identify it with the ultraviruses. Further evidence of the ultravirus nature of the etiologic agent is its ability to cause the appearance of inclusions in the nerve cells it attacks. The monkey remains the best experimental animal for the study of the behavior of poliomyelitis virus. From investigations on this animal it appears that the virus follows the nerve fibers as do the rabic virus and that of yellow fever.

Immunity to poliomyelitis has been the subject of numerous recent studies. The extreme rarity of second attacks is evidence of the immunizing nature of this condition. The immunity, however, is not stable, at least at the beginning, since relapses are not prevented and are sometimes brought about by intercurrent diseases. Neither does the immunity imply the immediate disappearance of the virus, as is shown by the recuperation of the virus after cataphoresis of the nervous center of the monkey twelve days after recovery from poliomyelitis. It is even possible that this persistence of the virus helps to strengthen immunity. The titration of the neutralizing antibodies in serum has given much additional immunologic information. Thus, when the serums of twenty-three persons who had been in close contact with poliomyelitis were tested, twelve did not neutralize the virus, but five months later when six of these were retested they all possessed neutralizing power. Furthermore, eight of fifteen subjects whose contact with patients had been occasional proved nonimmune immediately and the six retested three and a half months later gave the same result. Unapparent infection therefore causes immunity to develop at only a slow rate.

A review of the geographic location of poliomyelitis indicated that epidemics and characteristic sporadic cases are indubitably more frequent in countries with cold or temperate climates. The disease is not excluded, however, from warm countries, and the lower numbers of cases notified in tropical countries can no doubt be explained partly by the less well developed medical organizations often present. Whatever the explanation, a reason has not yet been found for the fact that the proportion of imperceptible infections, as measured by the neutralizing antibodies, is higher in warm than in temperate or cold countries.

The value of serum treatment of poliomyelitis is difficult to analyze. The practical impossibility of diagnosis before the onset of the paralytic stage, the normally low number of cases of paralysis in the average untreated epidemic, and the difficulty of obtaining adequate control all militate against easy conclusions with regard to the effectiveness of serum treatment. The authors summarize the present position of this question as follows: "1. Experimental studies show that the most active serums are powerless to check the development of the disease even when given before the onset of the initial febrile stage. 2. In the absence of strict control groups and owing to the impossibility of foreseeing the course of preparalytic cases, there are no irrefutable statistical proofs of the efficacy of the serum, even when applied at the preparalytic stage. Inversely, there is no absolute proof of its complete ineffectiveness. 3. The majority of observers have reported favorable clinical effects from the use of serum (decline of symptoms of intoxication and of fever, etc.), these effects often being apparent immediately, whatever the mode of administration (intracisternal, intraspinal, intramuscular or intravenous)."

Two methods of prophylaxis have received the most concentrated study. Thus the prophylactic use of convalescent or immunized animal serum, and of immunotransfusion, is based on experimental results that have generally been favorable but have not yet received convincing statistical proof of its efficacy for man. Even if effective, however, the immunizing action cannot be prolonged or repeated indefinitely. Hence, prophylaxis by vaccination has been attempted on a fairly wide scale.

The virus used in vaccination has been variously killed or attenuated by solutions such as formaldehyde or sodium ricinoleate. Administration of such vaccines has usually resulted in considerable immunity developing. The authors state, however, "that vaccination against poliomyelitis is now practicable without serious risks and with considerable probability of effectiveness." The report of Leake [2] was evidently unknown at the time these words were written. Current opinion

1. Biraud and Deutschman: Poliomyelitis: History of the Disease and of Research Concerning Its Epidemiology During Recent Years, Epidemiologic Report, Health Section of Secretariat, League of Nations **14:** 207 (Oct.-Dec.) 1935.

2. Leake, J. P.: Poliomyelitis Following Vaccination Against This Disease, J. A. M. A. **105:** 2152 (Dec. 28) 1935.

since Leake's report of twelve cases of poliomyelitis following vaccination tends definitely to consider vaccination at present too dangerous to employ. Furthermore, some obscurity exists on another point. If, as some evidence indicates, poliomyelitis assumes its paralytic form in persons whose constitution makes them unable to produce antibodies in sufficient quantity, the effectiveness of vaccination in such cases is doubtful a priori. If the latter hypothesis is true, the persons successfully vaccinated would be precisely those in whom the infection would have manifested itself in unapparent or abortive forms in any case.

While great progress has undoubtedly been made in the understanding of poliomyelitis, effective control must await further fundamental elucidation.

RÔLE OF BILE IN VITAMIN A UTILIZATION

Much evidence is available emphasizing the rôle of bile in the absorption of lipids;[1] little or none of this foodstuff is absorbed when bile is excluded from the intestinal tract. This decreased absorption of the lipids is significant first with respect to the requirement of the organism for this material for purposes of energy. It assumes added importance when considered from the point of view of water-insoluble substances that depend on fat as a vehicle for transport across the intestinal wall. Decreased absorption of cholesterol, for example, has been noted in icteric patients and is apparently associated with a diminished absorption of fat. Whether the bile aids the absorption of cholesterol by direct solvent action on this sterol or by an indirect assistance through its effect on fat (a solvent for cholesterol) is not entirely clear. The fact remains that bile influences the absorption of lipids and of materials associated in nature with this class of substances.

One of the most important fat soluble substances of physiologic interest is vitamin A. It seems logical to reason a priori, therefore, that bile should play an important part in the absorption of vitamin A or its precursor, beta carotene, from the intestinal tract. Interesting laboratory and clinical evidence has recently been offered to support this hypothesis and to emphasize the important influence of bile in the utilization of vitamin A.

The laboratory contributions of Schmidt and his co-workers[2] at the University of California have presented suggestive observations on the absorption of fat soluble vitamin A in the absence of bile and have pointed out quite unexpected differences in the ability of icteric animals to utilize the vitamin as contrasted to its precursor beta carotene. Using the rat as the experimental animal, and employing the daily vaginal smear examination as a criterion of vitamin A depletion, these investigators found that the absorption of vitamin A, in the form of cod liver oil, from the gastro-intestinal tract does occur in the absence of bile. In experimental icteric rats on low vitamin A diets, it was possible to restore the normal vaginal smear pictures by oral administration of cod liver oil. The storage of vitamin A in these animals could then again be depleted to a level at which only cornified cells, indicative of restricted vitamin A intake, were found in the vaginal smears. It was then possible to restore the normal picture for the second time by oral administration of cod liver oil. In contrast to these results with the oil, it was observed that in the absence of bile the vitamin A deficient rat does not respond to oral administration of a mixture of the alpha and beta carotenes. The carotene therapy did cause a positive response in these animals, however, when the material was given by subcutaneous injection. Further evidence of the important rôle of the bile acids as carriers of carotene across the intestinal wall of the rat was provided by the demonstration that the vitamin precursor is effective orally in icteric rats if the substance is administered together with preparations of the bile acids.

Although it is difficult to analyze case reports in the early literature because of the lack of dietary data, it seems evident that there has long been a clinical association of severe protracted jaundice with various manifestations of what is now known as vitamin A deficiency. Within recent years the specific connection between hepatic disease with icterus and vitamin A deficiency has become definitely apparent. The importance of this relation may be emphasized in view of the possible rôle of bile in the absorption of vitamin A. In spite of the fact that the diet received may be adequate in vitamin A and lead to none of the more obvious manifestations resulting from a lack of this vitamin, recent reports indicate that more deep-seated changes, evident only at necropsy, may be occurring. Altschule[3] has presented an interesting postmortem study of eleven infants with congenital atresia of the bile ducts. All these infants received diets adequate in respect to vitamin A, and none presented clinical evidence of xerosis or keratomalacia during life. However, definite microscopic evidence of vitamin A deficiency was found in six of the eleven cases. It seems possible that in the clinic also this deficiency may be related to a failure of absorption of vitamin A or its precursors from the intestinal tract as the result of the absence of bile. The presence of this deficiency disease may be overlooked because the consequent gross manifestations, as specific ocular changes, occur much later than the histologic alterations. The experimental and clinical data indicate the efficacy of parenteral administration of vitamin A in conditions of severe obstructive jaundice. Oral administration, accompanied by bile salts, may also be of value.

1. Verzár, F.: Nutrition Abst. & Rev. **2**: 441 (Jan.) 1933.
2. Schmidt, W., and Schmidt, C. L. A.: Univ. California Pub. Physiol. **7**: 211, 1930. Greaves, J. A., and Schmidt, C. L. A.: Am. J. Physiol. **111**: 492 (April) 1935.
3. Altschule, M. D.: Vitamin A Deficiency, Arch. Path. **20**: 845 (Dec.) 1935.

Current Comment

EXPERIMENTAL AND CLINICAL SINUSITIS

Since 1930 Fenton and Larsell have carried on a series of investigations on sinus inflammations. Their studies have been made for the most part by observing the effects of surface applications to the membranes of the frontal sinus in cats. These membranes were first inflamed by inoculation with human strains of hemolytic streptococci. In a communication now appearing,[1] these studies have been summarized. A number of preparations have been employed including histamine, azochloramide, aminoacetic acid, acetylcholine, amniotic fluid, isotonic chlorophyll, sodium alum and ten new compounds thought to have effects similar to those of ephedrine. Some of these substances have been tried also on patients. The investigators were forced to conclude from these studies that, owing to the defensive factors inherent in sinus epithelium and the connective tissue elements of its tunica propria, almost every preparation applied to the surface of such membranes becomes an irritant unless its strength is isotonic. Stronger solutions are almost certain irritants, as are those which in any way interfere with ciliary action, no matter how well they may function as antiseptics in a test tube. Only a few chemical substances are favorable to the growth of cells and stimulate an influx of reparative histiocytes and leukocytes. It has also been demonstrated that histiocytes take up particulate matter from the outer (bony) side of the sinus membrane as well as from the lumen of the cavity. Specifically, histamine in the normal sinus merely increases the flow of mucus but in repeated doses causes severe acute exacerbation of chronic suppuration. Azochloramide was shown to share the irritant properties of similar substances without stimulation of repair. Reparative effects were also not noted after the application of aminoacetic acid or acetylcholine to the surface, although the latter brought about marked edema of both the acutely and chronically infected membranes. Amniotic fluid both half and full strength caused marked congestion, leukocytic infiltration and early fibrous reparative changes with diminution of the superficial destructive changes during seventy-two hours. Astringents (sodium alum and tannic acid) used in weak solution inhibited greatly the severity of infection when such sinuses were subsequently inoculated. The new ephedrine-like compounds had a slightly stimulating effect toward repair, especially tetrandine methiodide. All produced slight blanching and shrinking of human mucous membrane. Proof of excessive fibrosis caused by roentgen therapy was afforded by the examination of the tissues from a man so treated. The authors feel that little is to be gained at present from further histopathologic study of sinus membranes of cats treated by local applications. The anatomic problems of lymphatic drainage of the sinuses, however, and of their anatomic innervation remain unsolved. Although difficult, these problems are of much importance in the interpretation of the physiology and pathology of the sinuses.

1. Fenton, R. A., and Larsell, Olof: Research Report on Experimental and Clinical Sinusitis, Arch. Otolaryng. **23**: 18 (Jan.) 1936.

DEATH RATE FROM ALCOHOLISM

Probably the best evidence of the extent of alcoholism can be obtained from comparative examinations of deaths due directly to this cause. Leary [1] has recently reported deaths accredited to alcohol in Suffolk County, Mass., from 1913 to 1934. Most of the deaths were directly due to alcoholism as such. The added cases included a percentage of the alcoholic pneumonias in which the alcoholic factor was of primary importance and some of the cases of fractured skull in which the degree of alcoholism was responsible for the injury that led to the fracture. The list did not include deaths from automobile accidents of any kind. The criteria have not changed to any appreciable degree in the period recorded. The deaths related to alcoholism were on a relatively standard average basis in the years 1913, 1914 and 1915. In 1916 and 1917 there were considerably more deaths. These were years of prosperity when workers were well paid. In 1917 and 1919, under the influence of patriotic urge, we became one of the most temperate people in the world, with a corresponding drop in the number of alcoholic deaths. Then came prohibition with little liquor available in 1920 and a still further drop in the deaths from alcohol. In the following two years a rise again began. The deaths during this period were for the most part in those who had access to bathing alcohol, bay rum, perfumes and jamaica ginger. By 1923 the bootlegging business was well established and the sources of supply were many. The alcohol deaths continued to rise under this influence until 1925, after which they continued at a fairly high but slightly downward level until 1933. Prohibition was abolished Dec. 4, 1933. In Massachusetts the local alcohol control system permitted the sale over the counter by druggists of 95 per cent alcohol. During the year ended Dec. 4, 1934, there was a tremendous rise in the alcohol death rate. By contrast with the lowered death rate reported elsewhere the probability is indicated that the sale of concentrated alcohol is largely responsible. Since concentration as well as quantity is a known factor, there seems little doubt that the readiness with which ethyl alcohol can be purchased over the counter in drug stores is an important element in the increase reported.

1. Leary, Timothy: The Death Rate from Alcoholism, New England J. Med. **214**: 15 (Jan. 2) 1936.

PRODUCTION OF CASEIN

Ordinarily casein is considered in connection with the nutritive value of milk and cheese; there is approximately 2.5 per cent of this important protein in fluid cow's milk. In the commonly used varieties of cheese, from 20 to 35 per cent is casein and the products of its digestion. However, casein enters into commerce widely in other ways than as a food. In the form of a colloidal solution in alkali, it is used as glue, cement or putty. When chalk, clay or kaolin is added to the thin casein glue, a size or coating for paper is obtained. Dry powdered casein or moist curd when heated becomes plastic and in this condition can be pressed or molded into any desired shape. This material can be turned, cut and polished and enters into commerce as artificial ivory, artificial celluloid, artificial cork and matting, and

as imitation leather. Paints are made from casein in alkali with a suitable filler and pigment; the protein finds use in the dyeing and textile industry as an absorbent and a loading agent. Heretofore large quantities of casein have been imported from South America, New Zealand and Australia, two thirds of that used in 1920 and one half of that used in 1929 being obtained from foreign countries. According to a recent report,[1] by 1934 only 4 per cent of the casein used was imported. In that year 37,331,000 pounds was produced domestically. It is obvious from these figures that the United States is rapidly becoming self sufficient in respect to the production of this important product of the dairy industry.

Association News

THE KANSAS CITY SESSION

Section Headquarters

The Hotel President has been selected as the hotel headquarters for the Section on Obstetrics, Gynecology and Abdominal Surgery at the annual session of the American Medical Association to be held in Kansas City in May. All accommodations are under the supervision of Dr. Ira H. Lockwood, chairman of the Housing Committee, who may be addressed in care of the Chamber of Commerce, 1028 Baltimore Avenue, Kansas City, Mo. Requests for reservations should be sent to Dr. Lockwood as soon as possible.

Fraternity Luncheons

Reservations for fraternity luncheons for Wednesday noon, May 13, have been made as follows:

Hotel Baltimore: Phi Chi, Dr. Ralph E. Duncan, chairman.
Hotel Kansas Citian: Alpha Mu Pi Omega, Dr. Pat Nunn, chairman; Omega Upsilon Phi, Drs. C. K. Smith and John Bouslog, chairmen; Phi Alpha Sigma, Dr. E. P. Heller, chairman; Phi Beta Pi, Dr. Orville Withers, chairman; Theta Kappa Psi, Dr. Herluf Lund, chairman.
Hotel Muehlebach: Phi Delta Epsilon, Dr. L. M. Shapiro, chairman.
Hotel President: Alpha Epsilon Iota, Dr. Lorraine Sherwood, chairman; Alpha Kappa Kappa, Dr. David Braden, chairman; Nu Sigma Nu, Dr. E. H. Hashinger, chairman; Phi Rho Sigma, Dr. Ralph Perry, chairman.

Fraternities desiring reservations may communicate with Dr. Harry M. Gilkey, 1316 Professional Building, Kansas City, Mo.

RADIO BROADCASTS

The American Medical Association broadcasts over WEAF, the Red network instead of the Blue, as formerly, and certain additional stations of the National Broadcasting Company at 5 p. m. eastern standard time (4 o'clock central standard time, 3 o'clock mountain time, 2 o'clock Pacific time) each Tuesday, presenting a dramatized program with incidental music under the general theme of "Medical Emergencies and How They Are Met." The title of the program is "Your Health." The program is recognizable by a musical salutation through which the voice of the announcer offers the toast "Ladies and gentlemen, your health!" The theme of the program is repeated each week in the opening announcement, which informs the listener that the same medical knowledge and the same doctors that are mobilized for the meeting of grave medical emergencies are available in every community, day and night, for the promotion of the health of the people. Each program will include a brief talk dealing with the central theme of the individual broadcast.

Red Network.—The stations on the Red network of the National Broadcasting Company are WEAF, WEEI, WTIC, WJAR, WTAG, WCSH, KYW, WFBR, WRC, WGY, WBEN, WCAE, WTAM, WWJ, WMAQ, KSD, WHO, WOW, WDAF.

1. J. Indust. & Engin. Chem., News ed. **14**: 11 (Jan.) 1936.

Pacific Network.—The stations on the Pacific network are KGO, KPO, KFI, KGW, KOMO, KHQ, KFSD, KTAR.

Network programs are broadcast locally or rejected at the discretion of the local station. The lists indicate stations to which programs are available.

The next three programs are as follows:

March 3. Cancer, W. W. Bauer, M.D.
March 10. Hard of Hearing, Morris Fishbein, M.D.
March 17. Eyesight Saving, W. W. Bauer, M.D.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

Bust of Lincoln Presented.—A bust of Abraham Lincoln, presented to the Los Angeles County Medical Association by Dr. Sven R. Lokrantz, was unveiled at a meeting, February 20. The program included an address by the sculptor, David Edstrom, and one by Mr. H. A. Guerney, pilot, United Air Lines, entitled "Behind the Scenes of Air Transportation." Dr. Harlan Shoemaker, president of the association, also spoke.

The Eyesight Swindlers Again.—Sheriff Rayburn of Riverside reported, January 2, that two swindlers using the "radium water" eye drop racket had been paid $75 by an elderly person in his vicinity for their "services." One man used the name A. C. Meuller. He was said to be about 45 years of age, 6 feet tall, weighing 185 pounds, with dark hair and eyes. The other, John Doe Reed, was about 50 years of age, 5 feet 9 inches tall and weighed about 150 pounds. He was of slim build, with dark hair and eyes, and wore glasses. He had a thin face and hollow cheeks.

Society News.—The San Bernardino County Medical Society devoted its meeting in San Bernardino, January 7, to a symposium on cancer of the breast; speakers included Drs. John M. Flude, Los Angeles, western field representative of the American Society for the Control of Cancer; Carlos G. Hilliard, Redlands; John A. Patterson, Colin C. Owen and Philip M. Savage Sr., San Bernardino; Calvert L. Emmons, Ontario, and John G. Staub Jr., Redlands.——Dr. Samuel Hanson, Stockton, addressed the San Joaquin County Medical Society, January 9, on "Occurrence and Management of Persistent Occiput Posterior," and Dr. Edmund W. Butler, San Francisco, "Aid to Diagnosis in Wounds in the Abdomen" and "Recent Advances in the Treatment of Poisons."——At a meeting of the Solano County Medical Society in Vallejo, January 14, Dr. Hans Lisser, San Francisco, spoke on "Adrenal Cortical Syndromes, with Mention of Cushing's Disease, and Arrhenoblastoma."——Dr. Edward B. Shaw, San Francisco, discussed communicable diseases before the Sonoma County Medical Society in Santa Rosa, January 9.

DISTRICT OF COLUMBIA

Medical Bills in Congress.—S. 3514 has passed the Senate, proposing to regulate the manufacture, dispensing, sale and possession of narcotic drugs in the District of Columbia. H. R. 8437 has passed the Senate, directing the Commission on Licensure to Practice the Healing Art in the District of Columbia to issue a license to practice medicine to Dr. Arthur B. Walker.

FLORIDA

Personal.—Dr. Paul G. Shell, Marianna, health officer of Jackson County, has resigned to accept a similar position with the health unit in Duval County; he will be succeeded by Dr. Frank V. Chappell, medical officer of Jacksonville.

Society News.—At a meeting of the Pinellas County Medical Society in St. Petersburg, January 3, the speakers were Drs. John A. Hardenbergh on "The Heart During Pregnancy"; Albert R. Frederick, "Addison's Disease," and Norval M. Marr, "Electrocardiographic Observation." The society was addressed, February 7, by Drs. Wyman W. Harden on "Some Phases of Gynecology of Interest to General Practitioners"; William E. Quicksall, "Treatment of Otitis Media in Children," and George Lochner, "Medical Ethics in Review."——At a meeting of the Duval County Medical Society in Jacksonville, January 7, Dr. Harry B. McEuen discussed "Carcinoma of the Larynx" and Dr. Irving J. Strumpf, "Pyelitis in Pregnancy."

GEORGIA

Accidental Deaths.—Deaths from accidents in Georgia showed an increase of 20.2 per cent during the ten year period 1925-1934, with automobiles heading the list of causes, according to the state health department. In 1934 there were 2,251 accidental deaths, of which automobiles were responsible for 802, including fatalities from collisions of automobiles with other vehicles. The deaths attributed to automobiles alone totaled 644 in 1934, as compared with 348 in 1925.

ILLINOIS

Society News.—At a meeting of the Henry County Medical Society in Cambridge, February 13, Dr. Ford K. Hick, Chicago, discussed pneumonia and Dr. Charles M. McKenna, Chicago, prostatitis.——Dr. Harry E. Mock, Chicago, discussed skull fractures before the Whiteside County Medical Society in Sterling, February 20.——Dr. James H. Hutton, Chicago, addressed the Champaign County Medical Society, February 13, on "Gland Therapy and Hypertension."——At a meeting of the La Salle County Medical Society in Mendota, January 30, Carlos I. Reed, Ph.D., and Dr. Carroll W. Stuart, both of Chicago, discussed "Concentrated Vitamin D in Treatment of Arthritis" and "Diseases of the Mouth and Their Relation to Systemic Disease" respectively.

Chicago

Clinical Meeting.—The Institute of Traumatic Surgery will hold an all day clinic session at St. Luke's Hospital, March 15, commencing at 9 a. m. Cases will be presented in the morning. The guest speaker in the afternoon will be Dr. Roger Anderson, Seattle, who will discuss "Ambulatory Methods of Treating Fractures of the Shaft of the Femur and Functional Method of Treating Fractures of the Shaft of the Humerus." A dinner in honor of Dr. Anderson will be held at the Palmer House in the evening.

Society News.—Dr. Jerome R. Head, among others, addressed the Chicago Pediatric Society, February 18, on "Posture in the Etiology, Prophylaxis and Treatment of Diseases of the Lung."——Dr. Alfred J. Kobak discussed "Maternal Deaths from Abortion in 1934" before a meeting of the maternal welfare committee of the Chicago Gynecological Society, February 18. Speakers before the Chicago Gynecological Society, February 21, included Drs. Garwood C. Richardson on "Significance of the Fetal Heart Tones and Uterine Firmness in Abruptio Placentæ"; Clyde J. Geiger, "Benign and Malignant Polyps of the Cervix Uteri," and Marshall W. Field, "Spontaneously Occurring Painless Labor in the Absence of Neurologic Diseases."

Ambulances to Be Equipped with First Aid Splints.—An ordinance has been passed by the city council requiring all ambulances to be equipped with first aid and splint appliances. Funds for this purpose are to be expended by the police, fire and health departments. Supplies are to be obtained from funds in the present budget and the personnel will be trained by the physicians of the various departments. Men are to be selected for this work and a sufficient number trained to make them adept and to supply at least one for each vehicle equipped. The equipment will include half-ring Thomas leg and half-ring Thomas arm splints, a few muslin bandages and some adhesive tape. The splints are to be kept in a small bag suspended from the side or top of each vehicle. The plan was originally sponsored by Dr. Kellogg Speed.

IOWA

Personal.—A dinner was recently given by the Greene County Medical Association in honor of Drs. William M. Young, Jefferson, who has practiced fifty-three years; Benjamin C. Hamilton, Jefferson, fifty-two years, and John H. Shipley, Rippey, forty-seven years.

Society News.—Dr. Maurice C. Hennessy, Council Bluffs, among others, addressed the Cass County Medical Society in Atlantic, January 10, on "The Social Security Act as It Affects the Medical Profession."——Dr. John F. Noble, St. Paul, discussed "Heterophile Antipneumococcus Serum Therapy in Lobar Pneumonia" before the Cerro Gordo County Medical Society in Mason City, January 21.——Among others, Dr. John A. Thorson, Dubuque, addressed the Clayton County Medical Society in Elkader, January 7, on "The Management of Sinusitis in Children."——Speakers before the Crawford County Medical Society in Denison, January 14, were Drs. Anthony L. Fink, Carroll, on "Ambulatory Treatment of Diseases of the Rectum," and Raymond C. Scannell, Vail, "Peptic Ulcer and Its Treatment."——A symposium on arteriosclerosis and cardiovascular renal disease was presented before the Dubuque County Medical Society, January 14, in Dubuque by Drs. Frank P. McNamara, Henry G. Langworthy, Laurence E. Cooley and Walter Cary.——Dr. Lee R. Woodward, Mason City, discussed "The Anemias" before the Hardin County Medical Society in Eldora, January 21.——Speakers before the Pottawattamie County Medical Society in Council Bluffs, January 27, were Drs. Arnold L. Jensen, "Bilateral Empyema in a Child"; Jack V. Treynor, "Chronic Labyrinthitis," and Aldis A. Johnson, "Diverticulitis." Dr. Howard L. Beye, Iowa City, discussed conditions requiring surgery following cholecystectomy.

KANSAS

Cancer Control Program.—The committee on the control of cancer of the Kansas Medical Society will sponsor a program throughout the state, March 31-April 4. Scientific sessions will be held in the afternoon for members of the state society and their guests, and public meetings in the evening. No admission will be charged. Speakers will be Drs. Burton T. Simpson, director, State Institute for the Study of Malignant Diseases, Buffalo; Charles F. Geschickter, head of the department of surgical pathology, Johns Hopkins University, Baltimore, and Frank L. Rector, Evanston, Ill., field representative, American Society for the Control of Cancer. These sessions will be held in Chanute March 30, Wichita March 31, Dodge City April 1, Hays April 2, Salina April 3, and Topeka April 4.

LOUISIANA

Society News.—The Seventh District Medical Society was addressed in Opelousas, December 12, by Drs. Bernard G. Efron, on management of asthmatic symptoms; Arthur Neal Owens, plastic surgery, and Curtis H. Tyrone, diagnosis of early carcinoma of the cervix. All were from New Orleans.——Dr. Hilliard E. Miller presented a case of hydatid cyst of the uterus before the Orleans Parish Medical Society, February 10; Drs. Walter E. Levy and Harry Meyer presented an "Analysis of the Touro Infirmary's Obstetrical Service for the Year 1935 Based on a New Record System," and Drs. Abraham L. Levin and Morris Shushan, a paper on "Value of the X-Rays in the Interpretation of Gastro-Intestinal Disease." The society recently adopted resolutions to sponsor a safety campaign.

MASSACHUSETTS

New Professor of Biological Chemistry.—Dr. Cyrus H. Fiske, since 1929 associate professor of biochemistry at Harvard Medical School, Boston, has been appointed professor. Dr. Fiske graduated in medicine at Harvard in 1914. After one year as assistant at his alma mater, he served at Western Reserve University School of Medicine, Cleveland, until 1918, when he returned to Harvard.

Anniversary Volume in Honor of Dr. Christian.—At the regular clinical pathologic conference in the Peter Bent Brigham Hospital, Boston, February 17, Dr. Henry A. Christian, physician-in-chief at the institution, was presented with a volume of medical papers dedicated to him by his former students, colleagues and house officers, as a token of affection on his sixtieth birthday. The presentation was made by Dr. Francis G. Blake, Sterling professor of medicine, Yale University School of Medicine, New Haven. The volume contains 1,000 pages of papers on many phases of internal medicine. About half of the articles represent original research. The few copies available may be obtained from Dr. Robert T. Monroe at the Peter Bent Brigham Hospital. Dr. Christian is also Hersey professor of the theory and practice of physic at Harvard Medical School.

Course in Automobile Control to Reduce Accidents.—Regular graduate courses on automobile traffic control will be started next fall by the Harvard University bureau for street traffic research in a scientific attack on automobile accidents, the New York *Times* reported January 21. This is said to be the first move along this line by any university. Fifteen fellowships of $1,200 each will be awarded to college graduates interested in traffic control engineering. In the announcement of the plan it was said that "the current loss of life and the serious social and economic consequences of the traffic problem make it one of national importance, and certainly one which is a very proper subject for university research and professional training." College graduates not more than 35 years old are eligible. Those now holding positions in fields related to street traffic control will be accepted on a leave of absence basis, so that they may return to their positions after the period of study, Sept. 28, 1936, to June 18, 1937. Each fellowship will have extra provision up to $200 for travel and field expense, it was stated.

MICHIGAN

Dr. Doan Will Give Beaumont Lectures.—Dr. Charles A. Doan, professor of medicine and director of research, Ohio State University College of Medicine, Columbus, will deliver the Beaumont Lectures for 1936 at the Institute of Arts, March 23-24. The illustrated lectures will be on "The Histopathology of the Blood." The series is sponsored by the Wayne County Medical Society.

Society News.—Dr. Charles H. Peckham, associate professor of obstetrics, Johns Hopkins University School of Medicine, Baltimore, addressed the Wayne County Medical Society, February 3, under the auspices of the Detroit Obstetrical and Gynecological Society; his subject was "The Incidence, Differential Diagnosis and Immediate and Remote Prognosis of the Toxemias of Late Pregnancies."——Dr. Lowell S. Selling, Detroit, discussed "The Doctor Looks at Crime" and Judge John V. Brennan "Criminology" at a meeting of the West Side Medical Society, Detroit, in January.——Dr. Sanford R. Gifford, Chicago, discussed treatment of detachment of the retina before the Detroit Ophthalmological Society, February 5.——Dr. John R. Birch presented a paper before the Detroit Oto-Laryngological Society, January 15, on "Laryngeal Obstruction." Dr. Hans A. Jarre exhibited a new method of irradiating the petrous apex and nasal sinuses.——Dr. Clarence A. Neymann, Chicago, discussed "Psychoanalysis and Its Application to the New Neuroses and Psychoses" before the Calhoun County Medical Society, Battle Creek, February 4. Dr. Albert C. Furstenberg, Ann Arbor, will address the society, March 3, on "Acute Infection of the Throat and Soft Tissues of the Neck."——Dr. Louis F. Foster, Bay City, was elected chairman of secretaries of county medical societies at the annual secretaries' conference in Lansing, January 26.

MISSOURI

University News.—Washington University School of Medicine, St. Louis, offers a week's intensive training in ophthalmology and otolaryngology, March 2-7. Only qualified specialists in these fields will be accepted. Information may be had from the dean of the school.

Bill Introduced.—S. 292 proposes (1) to authorize the insurance commissioner to license any person, firm, association or corporation to engage in the business of a hospital service association or corporation, or the business of making contracts in advance of sickness or illness, to furnish or pay for hospitalization and (2) to exempt such licentiates from the provisions of the insurance laws.

Physicians Honored.—Tribute was paid to three physicians at a dinner recently given by the staff of the Independence Sanatorium, Independence, in honor of their many years of practice in the community. The three physicians were Drs. Oliver C. Sheley, who has practiced forty-six years in Independence; Calvin Atkins, thirty years, and William E. Messenger, twenty-eight years, according to newspaper accounts. Dr. Charles F. Grabske, president of the sanatorium, presided, and speakers included William Southern Jr., editor of the Independence *Examiner*.

Lectureship in Honor of Dr. Loeb.—A lectureship has been established by the Mu chapter of the Phi Beta Pi Medical Fraternity in honor of Dr. Leo Loeb, Edward Mallinckrodt professor of pathology, Washington University School of Medicine, St. Louis. Under the Leo Loeb Lectureship, medical scientists of distinction will be invited each year to address the students and faculty of the school, the lectures to be open to all members of the university and to the medical public. The first lecture will be given early in March. Dr. Loeb graduated from the University of Zurich Faculty of Medicine. He has been associated with Washington University since 1915 and has been professor of pathology since 1924. From 1910 to 1912, Dr. Loeb was chairman of the Section on Pathology and Physiology of the American Medical Association.

Medicomilitary Symposium.—The Spring Medicomilitary Symposium will be held at the Municipal Auditorium in Kansas City, March 9-10, under the direction of Col. Kent Nelson, seventh corps area surgeon, and Lieut. Comdr. Lincoln Humphreys, representing the surgeon general of the navy. The morning sessions will be devoted to twenty minute addresses by clinicians of Greater Kansas City; the afternoons will be given to two clinic periods followed by instruction periods for reserve officers of the army and navy. The evenings will be divided between clinical lectures and military addresses. Guest speakers will include Dr. Ernest Sachs, professor of clinical neurologic surgery, Washington University School of Medicine, St. Louis, on "Classification and Management of Head Injuries," and Dr. Edward F. Roberts, New York, who will present motion pictures on "Management of Pneumonia" and "Pernicious Anemia: Diagnosis, Treatment and Results." Programs in surgical technic are being arranged by Dr. Max Goldman at several hospitals for Wednesday. The symposium is open to all regular physicians; no fee will be charged.

NEW JERSEY

Society News.—Dr. Henry A. Rafsky, New York, addressed the Bayonne Medical Society, January 20, on "Nonsurgical Treatment of Pyloric Obstruction as a Result of Peptic Ulcer."——Dr. Israel Strauss, New York, addressed the Bergen County Medical Society, Hackensack, February 11, on "Neurologic Signs and Symptoms for the General Practitioner."——Dr. David M. Davis, Philadelphia, addressed the Atlantic County Medical Society, Atlantic City, February 14, on prostatic obstruction.——Dr. Ernest A. Spiegel, Philadelphia, addressed the Academy of Medicine of Northern New Jersey, Newark, January 14, on "Convulsive Disorders."——Dr. Carl Eggers, New York, discussed "Surgical Conditions of the Sigmoid" before the Hudson County Medical Society, Jersey City, February 4.

Bills Introduced.—A. 158, to amend the workmen's compensation act, proposes that no physician employed in the Department of Labor or by the State Rehabilitation Commission shall during his employment accept or participate in any fee from any insurance company authorized to write workmen's compensation insurance or from any self-insurer, whether such employment or fee relates to a workmen's compensation claim or not. A. 180 proposes, in effect, that the statute of limitations shall not start to run against a patient on any claim or right of action he may have against a physician for malpractice until such time as the patient has knowledge of the injury alleged to have been inflicted on him by his physician. A. 185, to amend the workmen's compensation act, proposes to make it easier for employees to recover compensation for hernias allegedly due to employment. The bill proposes that where there is traumatic hernia resulting from the application of force directly to the abdominal wall, either puncturing or tearing the wall, compensation will be allowed. In all other cases, compensation will be allowed when there is a preponderance of proof that the hernia was caused by such sudden effort or severe strain (1) that the descent of the hernia followed within twenty-four hours of the cause; (2) that there was severe pain in the hernial region; (3) that the employee was compelled to cease work within twenty-four hours; (4) that the condition was of such severity that it was noticed by the workman and communicated to the employer within forty-eight hours after the occurrence of the hernia; (5) that there was such physical distress that the attendance of a licensed physician was required within forty-eight hours after the occurrence of the hernia. A. 195, to supplement the pharmacy practice act, proposes to authorize the courts, on the application of the board of pharmacy, to restrain the unlicensed practice of pharmacy or other violations of the act. A. 395 proposes to authorize the sexual sterilization of certain socially inadequate persons, whether inmates of state institutions or not.

NEW YORK

New School Health Director.—Hiram A. Jones, Ph.D., director of physical education in the state department of education for the past four years, has been appointed director of school health and physical education, having made the highest rating in a civil service examination. Dr. Jones, 36 years old, is a graduate of Allegheny College, Meadville, Pa., and received the degree of doctor of philosophy from Columbia University. He will have charge of health and physical education activities in schools throughout the state.

Augustus Downing Dies.—Augustus S. Downing, LL.D., for many years an official of the New York State Education Department, died at his home in Albany, February 5, aged 79. In his capacity as assistant state commissioner of education and director of professional education, Dr. Downing was active in obtaining the passage of the state medical practice act. According to the Albany *Times-Union*, the law was defeated in the legislature thirteen times before it was enacted in 1926. Dr. Downing was made deputy commissioner of education and in 1927 he retired from active work. Several colleges had conferred honorary degrees on him.

Committee to Study Suicide.—The "Committee for the Study of Suicides" was recently chartered in Albany by a group of psychiatrists and others to conduct research into causes and possible prevention of self destruction. Dr. Gerald R. Jameison, clinical director of Bloomingdale Hospital, White Plains, is president; Mr. Marshall Field, New York, vice president, and Dr. Gregory Zilboorg, New York, secretary and

director of research. Other members are Drs. Franklin G. Ebaugh, Denver; Henry Alsop Riley, Dudley D. Shoenfeld, Herman Nunberg and Bettina Warburg, all of New York; Miss Elizabeth G. Brockett, social worker, New York, and Mr. Barklie McKee Henry, president of the Association for Improving the Condition of the Poor, New York.

Bills Introduced.—S. 898 proposes to create a state board of opticians and to regulate the practice of opticians. The bill defines as an optician "a person . . . who holds himself out as being able to produce or reproduce optical instruments, or one who deals in optical instruments or eyeglasses prescribed for the treatment, improvement or correction of the vision, or who can reproduce or duplicate existing lenses of any character of the same foci in any form, who is skilled in the science of optics, treating with the nature and properties of light and vision, and who deals in optical instruments, eyeglasses and essential parts thereof. Superintends grinding of lenses for eyeglasses to precise geometrical form to correct visual abnormalities of the human eye and possesses the ability and skill to make accurate eye, facial measurements, adapted in fitting and adjusting the eyeglasses as prescribed by the eye physician, known as oculist or optomologist, or duly licensed optometrist for the treatment, improvement and corrective effect of vision." S. 918 and A. 1134 propose that the provisions of the pharmacy practice act shall not apply to the sale of drugs, medicines, chemicals, prescriptions or poisons at wholesale when not for the use or consumption of the purchaser, "provided, however, that no manufacturer or wholesaler may sell any drug, medicine, chemical, prescription or poison containing poisonous, deleterious and/or habit forming drugs to any person or corporation unless such person or corporation has been duly authorized to sell such drug, medicine, chemical, prescription or poison at retail." S. 988 and A. 1170 propose to grant to charitable and to governmental hospitals, treating persons injured through the negligence of others, liens on any judgments, awards, compromises or settlements accruing to the injured persons because of their injuries.

New York City

Annual Art Exhibit.—The New York Physicians Art Club will hold its annual exhibit, April 4-18, at the New York Academy of Medicine. Exhibits must be delivered at the academy before March 14. Checks for $6 made out to Dr. Winfred Morgan Hartshorn for the 1936 assessment must be mailed to Dr. Louis C. Schroeder, 50 East Seventy-Second Street, secretary of the club.

Society News.—Dr. Leonard Greenburg of the division of industrial hygiene, state department of labor, Albany, addressed the Bronx County Medical Society, February 19, on "Industrial Diseases and Their Relation to the New Compensation Law."——Drs. William Edward Chamberlain, Philadelphia, and William P. Healy addressed the Medical Society of the County of Kings, February 18, on "Radiation Therapy in Cancer" and "Deep X-Ray Therapy in Pelvic Neoplasms," respectively.

Program on Effects of Noise.—The Medical Society of the County of New York devoted its meeting February 24 to consideration of the effects of noise on health. Dr. Edmund Prince Fowler discussed the effects of noise on the normal and the abnormal ear; Dr. John L. Rice, health commissioner, and Dr. Sigismund S. Goldwater, commissioner of hospitals, the effect on public health; Dr. Foster Kennedy, the effect from the neurologic point of view. Harvey Fletcher, Ph.D., of the Bell Telephone Laboratories presented a demonstration of various noises showing their loudness in decibels.

Friday Afternoon Lectures.—The Medical Society of the County of Kings announces the following lectures in its Friday afternoon series:

Dr. Leonard G. Rowntree, Philadelphia, Relationship of the Thymus and Pineal Gland, March 6.
Dr. Hugh H. Young, Baltimore, The Prostate, March 13.
Elmer V. McCollum, Sc.D., Baltimore, Vitamins, March 20.
Dr. Louis E. Phaneuf, Boston, Gonorrheal, Postpartal, Postabortal and Tuberculous Pelvic Infection—Its Prevention and Treatment, March 27.
Dr. Bela Schick, Childhood Tuberculosis, April 3.

Dr. Russell M. Wilder, Rochester, Minn., spoke on "Hypoglycemia" February 28.

Professor of Psychiatry Appointed.—Dr. Oskar A. Diethelm, associate psychiatrist at Johns Hopkins Hospital, Baltimore, has been appointed professor of psychiatry at Cornell University Medical College and psychiatrist in chief to New York Hospital to succeed Dr. George S. Amsden, who retired in 1935. Dr. Diethelm, who is 38 years old, was born in Switzerland and was graduated in medicine from the University of Zurich Faculty of Medicine in 1922. He went to Johns Hopkins in 1925 as house officer in the Phipps Psychiatric Clinic and two years later was appointed resident psychiatrist. In 1932 he was appointed associate professor of psychiatry at Johns Hopkins University School of Medicine.

OHIO

Society News.—At a meeting of the Toledo Academy of Medicine, February 7, speakers were Drs. Benjamin W. Patrick, on embolism, with a discussion of the possibility of prevention, and James B. Rucker Jr., on pathology of embolism and thrombosis. Dr. Albert Graeme Mitchell, Cincinnati, will give a graduate course in practical pediatrics, March 25-27, at the academy building.

Faculty Changes at Cincinnati University.—Dr. Carey P. McCord, associate professor of preventive medicine at the University of Cincinnati School of Medicine since 1920, has resigned, according to the *Journal of Medicine*. At the January meeting of the board of directors the "William D. Porter Professorship in Obstetrics" was created, in memory of the late Dr. Porter, for many years professor of clinical obstetrics. Dr. Henry L. Woodward, for many years associated with Dr. Porter as professor of obstetrics, was appointed to the new professorship. Dr. Porter died Sept. 27, 1935.

Public Health Lectures in Cincinnati.—The Academy of Medicine of Cincinnati and the University of Cincinnati College of Medicine are sponsoring a series of public health addresses for the public Sunday afternoons. Dr. William Muhlberg, medical director, Union Central Life Insurance Company, gave the first, February 23, on "Preventive Medicine." Following are the rest of the series:

Dr. Alfred Friedlander, dean of the college of medicine, Your Heart, Its Care in Health and Disease, March 29.
Dr. Richard S. Austin, professor of pathology, Cancer, April 26.
Dr. Emerson A. North, professor of psychiatry, Mental Health, May 22.

OREGON

Society News.—Dr. Frank R. Menne, Portland, addressed a joint meeting of the Multnomah County Medical Society with the University of Oregon Medical School Seminar, January 22, on "Recent Advances in the Study of the Cause of Cancer."——Dr. Matthew C. Riddle, Portland, addressed the Lane County Medical Society, Eugene, December 20, on "The Anemias: Their Diagnosis and Treatment."

Graduate Course in Ophthalmology and Otolaryngology.—The Oregon Academy of Ophthalmology and Otolaryngology and the University of Oregon Medical School will sponsor a week of intensive work in those subjects March 30-April 4 at the medical school. Drs. John E. Weeks and Frank R. Menne, Portland, will supervise a course in ocular pathology and Olof Larsell, Ph.D., a course in dissection of the head and neck. Lectures and clinics will be given by Drs. Harry S. Gradle, Chicago; William L. Benedict, Rochester, Minn.; William P. Wherry, Omaha, and Dean M. Lierle, Iowa City. Information may be obtained from Dr. Augustus B. Dykman, Medical Dental Building, Portland.

PENNSYLVANIA

Society News.—Dr. Arthur G. Davis, Erie, addressed the Erie County Medical Society, January 8, on "Progress in Treatment of Fractures of the Spine."——A symposium on socialization of medicine made up the program of the Lycoming County Medical Society, February 14, at Williamsport. Speakers were Drs. John P. Harley, Williamsport, on hospital insurance plans; La Rue M. Hoffman, Williamsport, the "Epstein bill"; Frederic C. Lechner, Montoursville, compulsory sickness insurance in Germany, and Wilbur E. Turner, Montgomery, compulsory sickness insurance in England.——Dr. Damon B. Pfeiffer, Philadelphia, addressed the Montgomery County Medical Society, Norristown, February 5, on "Surgical Diseases of the Colon and Rectum."——Dr. B. B. Vincent Lyon, Philadelphia, addressed the Lehigh County Medical Society, Allentown, February 11, on "Diagnosis and Medical Management of Cholecystitis."——Dr. Ralph M. Tyson, Philadelphia, discussed "Problems in Infant Feeding" before the Cambria County Medical Society, Johnstown, February 13.

Philadelphia

Symposium on Diabetes.—The meeting of the Philadelphia County Medical Society, February 26, was devoted to a symposium on diabetes, with the following speakers: Drs. Elliott P. Joslin, Boston, "Trauma in Relation to Diabetes"; Russell Richardson, "Immunity in Diabetes," and Cyril N. H. Long, "Pituitary, Adrenal and Pancreatic Diabetes." Dr. Long presented a motion picture on "The Effects of Hypophysectomy and Adrenalectomy upon Pancreatic Diabetes."

Committee to Investigate Mental Hospital.—The mayor of Philadelphia has appointed a committee of physicians to investigate conditions at the Philadelphia Hospital for Mental Diseases and make recommendations for improvement. Dr. Wilmer Krusen is chairman and members are Drs. Frederic H. Leavitt, George C. Yeager, Malachi W. Sloan, Alfred Stengel, Frederick H. Allen, Paul J. Pontius, Edward A. Steinhilber, Ruth H. Weaver and Dorothy C. Blechschmidt.

University News. — The residuary estate of the late Dr. Delno A. Kercher, amounting to about $116,000, was awarded to the University of Pennsylvania School of Medicine, January 29. The will specified that the bequest was to be used for a loan fund for students in the medical school after their first year, graduate students and research workers. —— Dr. Walter Bradford Cannon, George Higginson professor of physiology, Harvard Medical School, Boston, delivered the Alpha Omega Alpha Lecture at Jefferson Medical College, February 14. Dr. Cannon's address was entitled "Serendipity." The William Potter Memorial Lecture was delivered at the college, February 7, by Dr. Dean Lewis on "Epochs in the Development of Surgery."

VIRGINIA

Health at Richmond.—Telegraphic reports to the U. S. Department of Commerce from eighty-six cities with a total population of 37 million, for the week ended February 15, indicate that the highest mortality rate (24.1) appears for Richmond and the rate for the group of cities as a whole, 13.9. The mortality rate for Richmond for the corresponding week of 1935 was 18.2 and for the group of cities, 12.6. The annual rate for the eighty-six cities for the seven weeks of 1936 was 13.4, as against a rate of 13.1 for the corresponding period of last year. Caution should be used in the interpretation of these weekly figures, as they fluctuate widely. The fact that some cities are hospital centers for large areas outside the city limits or that they have a large Negro population may tend to increase the death rate.

Society News.—The Northampton County Medical Society was addressed, January 3, by Drs. James Morrison Hutcheson and Beverley R. Tucker, Richmond, on "The Rationale of the Application of Certain Surgical Measures to the Relief of Hypertension" and "Neurological Aspects of Pellagra" respectively.——At a meeting of the Patrick-Henry Medical Society in January in Bassetts, Dr. John E. Gardner, Roanoke, spoke on diseases of the chest.——Dr. Frederick M. Hodges, Richmond, discussed "Roentgen Therapy" before the Lynchburg Academy of Medicine, January 6.——At a meeting of the Roanoke Academy of Medicine, January 6, speakers were Drs. Charles A. Young, "Interpretation of Changes in the Eye Grounds"; John E. Gardner, "Normal and Pathological Considerations," and Harry Golston, "Clinical Significance of Auricular Fibrillation with Electrocardiograms."

WASHINGTON

Medical Museum. — A collection of antiquated surgical instruments, assembled by the Puget Sound Surgical Society, will serve as the nucleus for a medical museum in Seattle, the *Bulletin* of the King County Medical Society announces. Dr. Karl H. Van Norman, superintendent of the King County Hospital, Seattle, has assigned space on the twelfth floor of the institution for the collection, and Dr. Joel W. Baker will supervise it. Contributions for the museum, which is being sponsored by the surgical society, are being solicited.

Society News. — Drs. Frederick R. Fischer and Otto M. Rott, Spokane, addressed the Yakima County Medical Society, Yakima, January 12, on "Mesenteric Adenitis in Children" and "Methods of Procedure in Diagnosis of Intracranial Complications of Ear Diseases" respectively.——Dr. Ralph A. Fenton, Portland, Ore., addressed the Walla Walla Valley Medical Society, Walla Walla, January 9, on "Nose, Ear and Throat Conditions from the General Practitioner's Viewpoint."—— Dr. William W. Mattson, Tacoma, addressed the Pierce County Medical Society in Tacoma, January 14, on "The Evolution of Blood Transfusion."

WISCONSIN

Society News.—At a meeting of the Eau Claire County Medical Society, Eau Claire, January 27, speakers were Drs. Joseph W. Gale, Madison, on "Surgical Treatment of Pulmonary Tuberculosis"; Arthur G. Sullivan, Madison, "Medico-legal Medicine," and Roy E. Mitchell, Eau Claire, "Ten Minutes of Medical News." —— Dr. William J. Bleckwenn, Madison, addressed the Fond du Lac County Medical Society, Fond du Lac, January 23, on "Brain Injuries: Their Diagnosis and Treatment." —— Dr. Louis A. Buie, Rochester, Minn., addressed a joint meeting of the Kenosha and Racine County medical societies, January 16, on "Proctology for the General Practitioner, the Internist and the Surgeon."——Drs. Carl S. Williamson, Green Bay, and Matthew A. McGarty, La Crosse, among others, addressed the Milwaukee Society of Clinical Surgery, January 28, on "Subphrenic Abscess as a Complication of Biliary Tract Infection and Surgical Intervention" and "Rationale of the Injection Treatment of Hernia" respectively. Dr. Louis A. Fuerstenau, Milwaukee, was elected president and Dr. William J. Carson, Milwaukee, secretary.

GENERAL

Medical Bills in Congress. — *Bill Introduced:* H. R. 11171, introduced by Representative Kramer, California, proposes to authorize an appropriation of such sum as may be necessary to provide for the enlargement of the Veterans' Administration hospital at San Fernando, Calif.

Microscope Stolen. — The North End Clinic, Detroit, announces that a Leitz-Wetzler microscope was stolen from the clinic's laboratory January 27 or 28. The microscope number is 302173, with oil objective number 150362. It has a high dry and low power lens mounted in the triple nose. piece; ocular × 10, abbé condenser, no substage mirror, and bears a detachable uncalibrated mechanical stage. It is reported that a gang in Detroit has been stealing microscopes and shipping them to distant points for disposal. Any information on this instrument should be communicated to Mrs. Eleanor J. Ford at 936 Holbrook Avenue, Detroit, director of the clinic.

States Act to Control Water Pollution.—New York and New Jersey entered into a compact January 24, to control pollution of water in the metropolitan area of New York. This action is the outgrowth of the work of a Tri-State Treaty Commission appointed by the legislatures of New York, New Jersey and Connecticut in 1931. The compact was drawn up and presented for action by the legislatures in 1932. It was enacted into law in New York in that year to become effective when ratified by New Jersey; the latter state passed its enabling law in 1935. The compact will become effective with respect to Connecticut as soon as that state enacts similar legislation. Briefly stated, the aims of the compact are to eliminate offensive pollution, to make beaches safe for swimming and recreational purposes, and to return certain areas now condemned to shellfish culture. The pact was approved by Congress in August 1935.

Meeting of Tuberculosis Association.—The thirty-second annual meeting of the National Tuberculosis Association will be held at the Municipal Auditorium in New Orleans, April 22-25. The preliminary announcement mentions the presentation of papers by authorities and, in addition, a symposium on tuberculosis among different peoples, covering Negroes in the United States, and racial aspects of tuberculosis in Mexico and Puerto Rico, with the following physicians as speakers: Esmond R. Long, Philadelphia; Donato Alarcón, Mexico City; Jose Rodriguez Pastor, San Juan, P. R., and Paul P. McCain, Sanatorium, N. C. Dr. Alarcón will also deliver an address at the opening general session Wednesday evening, entitled "The Campaign Against Tuberculosis in Mexico." The National Conference of Tuberculosis Secretaries will meet at the Roosevelt Hotel Wednesday, April 22, with Dr. Kendall Emerson as the speaker on "Recruiting and Training Tuberculosis Workers." The administration and function of tuberculosis associations will be the theme of a symposium at this meeting.

Society News.—Dr. Richard Kovacs, 1100 Park Avenue, New York, is executive of the American committee for the International Congress on Physical Medicine, which will be held in London, May 12-16. American participants will sail from New York on the *Britannic* and return May 31 on the *Transylvania*. —— Dr. John A. C. Colston, Baltimore, was elected president of the Mid Atlantic branch of the American Urological Association at the second annual meeting in Washington, D. C., January 23.——The American Physiotherapy Association, an organization of physical therapy technicians, will hold its annual meeting at the Hotel Ambassador, Los Angeles, June 28-July 2.——The second Congress of the Pan-Pacific Surgical Association will be held in Honolulu, T. H., August 6-14.——The American Physical Education Association will hold its annual meeting in St. Louis, April 15-18.——At a meeting of the midwestern section of the American Congress of Physical Therapy in Rochester, Minn., March 4-5, speakers will include Dr. Melvin S. Henderson, Rochester, on "Physical Therapy in Relation to Orthopedics"; Dr. John S. Coulter and Howard A. Carter, B.S., secretary, Council on Physical

Therapy, American Medical Association, Chicago, "Studies in Tissue Heating with Short Wave Diathermy" and Dr. Disraeli W. Kobak, Chicago, "Influence of Short Wave Diathermy on the Blood." A symposium on arthritis will be presented by Drs. Ralph K. Ghormley, Philip S. Hench, Charles H. Slocumb and Frank H. Krusen, all of Rochester.——The National Society for the Advancement of Gastro-Enterology will hold its annual meeting in Atlantic City, June 5, with headquarters at Haddon Hall.——The National Congress of Parents and Teachers will hold its annual convention in Milwaukee, May 11-15.

Government Services

Meat Inspection Chief Dies

Adolph J. Pistor, D.V.S., chief of the meat inspection division of the Bureau of Animal Industry, U. S. Department of Agriculture, died in Washington January 25, aged 59. Dr. Pistor entered the service of the bureau in 1898. He took an active part in the organization of the meat inspection service after the passage of the federal law in 1906 and later was assigned to administrative duties in Washington. He became chief of the service Jan. 1, 1935.

Tribute to Dr. Cumming

In a discussion of the Treasury and Postoffice Appropriation Bill, 1937, on the floor of Congress, February 5, Mr. John J. Boylan, congressman from New York, gave a brief outline of the career of Dr. Hugh S. Cumming, recently retired surgeon general of the U. S. Public Health Service. Mr. Boylan said:

> I venture to express the opinion that many members of this house regret the retirement of the surgeon general from active duty. . . . Many of us should take this opportunity to express gratitude for the excellent work which he has performed for this nation. I am sure that he will have that happiness and contentment which comes to every man whose services have been honestly and faithfully performed.

Twenty-One States Share First Social Security Grants

United States Treasury checks representing the first social security grants to states for assistance in their aid to the aged, the blind and to dependent children, were in the mails February 13. Among the first checks sent were:

To Arizona	$ 4,725.00
To Connecticut	2,520.00
To District of Columbia	9,450.00
To Idaho	6,300.00
To Maine	26,250.00
To Mississippi	8,820.00
To Nebraska	15,540.00
To New Hampshire	5,040.00
To North Carolina	3,324.99
To Wisconsin	52,149.99
To Wyoming	4,161.40

In states the public assistance plans of which are approved by the Social Security Board, the federal government will match state funds dollar for dollar in the case of aid to the needy aged and the blind, and one dollar for each two dollars disbursed by the states for aid to dependent children. An additional 5 per cent of the federal grants to states for old age assistance and aid to the blind will be paid to the states to share the cost of the administration of these two forms of public assistance.

The twelve states with approved plans for aid to the blind are:

Arizona	Maine	North Carolina
Connecticut	Mississippi	Pennsylvania
District of Columbia	Nebraska	Wisconsin
Idaho	New Hampshire	Wyoming

In addition to the states which have had one or more public assistance plans approved, a number of other states have submitted their public assistance plans for approval by the board, and still other states are expected to do so shortly.

To be approved by the Social Security Board, under the terms of the Social Security Act, state public assistance plans must provide for cash payments to needy aged persons, to dependent children living in their own homes or the homes of relatives, and to the needy blind, in all parts of the state. A single state agency must administer the plan or supervise its administration, if the plan is directly administered by the counties. This state agency must grant the opportunity for an appeal from any decision of a county denying assistance to an applicant.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Jan. 22, 1936.

Report of Cancer Research Fund

In the annual report of the Imperial Cancer Research Fund the retirement of the director, Dr. J. A. Murray, who had occupied his post since 1915, the second year of the inception of the fund, is recorded. With Dr. Bashford he laid the foundation for the experimental investigation of cancer by proving that it is not confined to man, as was at one time believed. The material they collected on the natural incidence of cancer in mice provided investigators with a knowledge of the disease in this species equal to that in man. It enabled Dr. Murray subsequently to demonstrate the hereditary factor of the disease. He confirmed the observations of Jensen on transplantation and showed the important fact that this was due to an actual transplantation of living cells and not to an infection of the new host by some agent separable from the cells. The subsequent discovery by Peyton Rous of tumors of the fowl which can be transmitted without the intervention of living cells led to numerous reinvestigations of Dr. Murray's early work, which have served to confirm it. Of equal importance are his investigations of the phenomena of immunity, which renders a normal animal resistant against transmission of the disease by transplantation.

The new director is Dr. W. E. Gye, whose work on the pathology of cancer is well known. In his report he points out that the facts that in all vertebrates normal cells can undergo malignant transformation and that such cells possess everywhere the same fundamental properties are the foundation of the experimental investigation of cancer. Of the diseases that can be produced experimentally, few if any simulate the normal human disease so closely as cancer.

CANCER NOT INCREASING AT AN ALARMING RATE

Dr. Gye points out that the prevalent opinion of a rapid increase of cancer was based on the crude figure of total cancer mortality. Bashford analyzed cancer mortality with reference to the different organs, separating accessible sites, where the diagnosis was easy, from inaccessible sites, where the diagnosis was difficult. He found that the recorded increase fell largely, though not entirely, on inaccessible sites, especially the stomach, while the skin and uterus showed no increase. Investigation of more than 10,000 cases at the London hospitals showed in the accessible sites that only 9 per cent were not recognized clinically, while the figure for inaccessible sites was 38 per cent —an astonishingly high figure for large hospitals with the most advantageous conditions for diagnosis. Thus the recorded total mortality of cancer must be much lower than the actual mortality. The greater attention paid in recent times to the clinical recognition would tend to diminish the extent of missed diagnoses and increase the recorded mortality.

EXPERIMENTAL CANCER INVESTIGATIONS

Transplantation of cancer was found to be successful only within the species from which the tumor was derived. Hence the failure to transmit human cancer to the lower animals. The propagation of a mouse cancer in mice can be carried on indefinitely. It follows that the *primum movens* of the disease is in the cancer cell itself and successive generations of normal mice are unable to affect the malignant properties of the transplanted cells. There is an important practical deduction. The laboratories of the Imperial Cancer Research Fund are willing to investigate so-called cancer cures. But almost all the "cures" brought for examination are based on an assumption that cancers arise and grow because of some constitutional defect in the body of the patient. It has been assumed that they pro-

gress because some gland is inadequate in what is supposed to be its function of controlling growth. These "cures" have all been tested, and they have been found useless.

VIRUS CANCERS

In 1911 Peyton Rous described a spindle cell sarcoma of the domestic fowl that could be propagated not only by grafts but by cell-free filtrates. Subsequently a score or more of filtrable avian tumors of diverse structure were described. Thus there exists a group of tumors produced by intracellular agents indistinguishable from the viruses. Dr. Gye therefore assigns to these agents a specific part in the genesis of tumors. The recent discovery by Shope of a filtrable papilloma of the cottontail rabbit has broken the apparently absolute difference in respect of filtrability between tumors of mammals and tumors of birds. Another important discovery was made by Professor McIntosh at the Middlesex Hospital. Tumors were started in fowls by injecting tar subcutaneously, and these were transplanted into normal fowls. In some cases it was found possible, once the difficulties of propagation had been overcome, to transmit the growths by means of cell-free filtrates. The part played by tar in cancer causation is thus different in kind from the part played by the filtrable agent, which can be obtained again and again from successive generations of the tumor.

Changes in the English Population

The Registrar-General's Statistical Review of England and Wales for 1933 has just been published. The estimated population in the middle of the year was 40,350,000, consisting of 19,357,000 males and 20,993,000 females. The total is 0.37 per cent greater than the estimated population for the previous year. The average age of the population is gradually increasing. In 1933 the figure for males was 32.2 years and for females 33.9. In 1931 the figures were respectively 31.8 and 33.5; in 1921 they were 29.9 and 31.2.

THE FALLING BIRTH RATE AND THE APPROACHING FALL OF POPULATION

The continuous fall in the English birth rate during the last half century is of first importance. As during all this period there has been an annual increase of population, the inevitable decline may seem paradoxical but is easily explained. It is a result of the fact that the recent birth rates are not sufficient to replace the younger persons of future generations, while the more remote birth rates, which are greater, are sufficient to more than replace the older persons. Moreover, the diminished death rate of recent years further maintains the older members of the population. The result is, as the figures show, a constantly aging population. The older persons, who represent former birth rates, can for a time conceal, by their numbers, the serious fall of the younger. But it is on the younger members, more specifically on the number of women of the reproductive age, that future population depends. These women have been reproduced for some years in sufficient number to replace those passing out of the reproductive period. If all other conditions remain exactly the same, the result must be in time that the persons of every age are not replaced, which means that the whole population must fall, irrespective of any further fall in the birth rate. But this is also going on. Hence the registrar-general states that the reduction of the population is "likely to come earlier than a few years ago was considered probable."

The live births in 1933 were 580,413, or 33,559 fewer than in 1932. The birth rate was 14.4 per thousand of population, the lowest on record. Only two other countries, Austria and Sweden, had lower birth rates. The rate of increase of the population was 2.1 per thousand, the lowest on record. The magnitude of the fall of the birth rate is shown by the comparison with the birth rate in 1876, which was 36.3. Thus a fall of 60 per cent has taken place in the last fifty years.

Maternal Mortality

The Fellowship of Medicine arranged a debate on the motion "That the Present Rate of Maternal Mortality Is a Discredit to Modern Obstetrics." Leading obstetricians took part. Prof. J. M. Munro Kerr said that the mortality was in no way mysterious and was due to the fact that the means at hand was not employed to prevent it. The mortality at two maternity hospitals in London, with institutional and domicilary services, was as low as 0.7 and 1 per thousand, which was five or six times lower than the general rate for England and Wales. The death rate from eclampsia was the criterion for assessing the quality of antepartum care. In the country generally there was no evidence of lowering of this rate, while in the services mentioned death from eclampsia rarely occurred. The only solution in densely populated areas was that the family physician should give up maternity work and leave it to municipal midwives and specialists.

Prof. G. I. Strachan said that since 1906 the maternal mortality had risen from 3.74 to 4.6 per thousand births. But the Netherlands was the only country of any account that could show a lower mortality than England and Wales. He gave high American figures: 10 per thousand for the state of Georgia in 1931 and 8.1 for Louisiana in 1934. He considered that the increasing incidence of abortions, the majority of which were procured, was one of the most important causes of maternal mortality. Another was the decrease in the size of the family, which meant a higher proportion of primiparas. He deprecated unnecessary intervention in labor but thought that there was no easy road to success in improving the mortality.

Professor Dougal said that the figure for maternal mortality in 1933 was 4.32 per thousand, which would be reduced to 3.7 if an estimated number of abortions were added—not an alarming mortality but higher than it should be, because many deaths could have been avoided if certain conditions were fulfilled. He considered that overcrowding of the towns was, as in the United States, responsible for our high mortality. The conduct of labor should be left to the midwife, but the general practitioner was the proper person to supervise the health of the pregnant woman and to detect abnormalities. In labor he should be available for the diagnosis of abnormalities and the treatment of those with which he was competent to deal or must deal because of urgency. For others the obstetrician should be available.

Dr. Bethel Solomons, formerly master of the Rotunda Hospital, Dublin, found the present system of obstetric teaching unsatisfactory. The student was required to attend a certain number of labors, but he should be required to attend them all through and not simply at the end. No one should be allowed to practice until he had done graduate work under supervision. As long as the number of forceps interventions remained high, with the proportion of mangled and dead women and children, it could not be said that the present state of obstetrics was creditable.

Second British Red Cross Unit for Abyssinia

The response to a broadcast appeal for funds to allow further help to be sent to the Abyssinians by the British Red Cross Society has been so prompt that the dispatch of a second unit was soon announced. Another appeal for $15,000 to enable an airplane to be presented to the Ethiopian Red Cross was also successful, sums varying from $2,500 to 25 cents from a little boy, being received.

The Australian Red Cross has asked the International Red Cross at Geneva if an another ambulance outfit is needed. If so, it will consider the practicability of sending a complete unit with four physicians and ten orderlies, to be maintained by public subscription. Australia is also prepared to send funds and Red Cross equipment to Italians, if needed.

PARIS

(From Our Regular Correspondent)

Jan. 17, 1936.

The Pathologist and the Surgeon in Preoperative Diagnosis

By a recent decree, the government changed the name of the Société de chirurgie to Académie de chirurgie. Now with two medical academies in France, the former members of the Société de chirurgie probably will be allowed to wear the historic green embroidered dress coat, the pride of the academician. The Société de chirurgie, only 92 years old, was in fact the heir of the ancient Académie royal de chirurgie and it is satisfying to see this famous name restored.

At the session of Dec. 11, 1935, Drs. H. Welti and René Huguenin pointed out the advantages of preoperative diagnosis in surgery of malignant tumors. Preoperative diagnosis is an investigation similar to biopsy, made before the operation; but it is a "directed biopsy." Instead of taking off a bit of a tumor at random, the surgeon, guided by experience, can choose the significant parts of the pathologic tissues and have them examined at once. He can be informed of the extent of the secondary lymphatic invasion. He can, in short, benefit by every bit of information secured during the operation. On the other hand, if the clinical diagnosis was wrong, the extemporaneous examination of the removed parts corrects it. This is of great importance in some cases. For instance, in a case of careful diagnosis of cancer of the thyroid reported by Drs. Welti and Huguenin, ablation of the organ was averted by the report of the pathologist working in collaboration with the surgeon. His conclusions showed a simple although long-continued thyroiditis with hyperplasia. The same thing may happen in cancer of the breasts; "directed biopsy" gives an almost perfect assurance of the benign or malignant character of the tumor.

The technic of the immediate examination differs according to the organs examined. On the whole, the constant collaboration of the surgeon and the pathologist in the course of the operation demands both great training and the spirit of cooperation. But, in the future, those details will be perfected and the pathologist will have his place, as a matter of routine, under every thoroughly equipped surgeon.

Conference on Preventive Pediatrics

The fifth conference of the International Association for Preventive Pediatrics met in Basel, Switzerland, last September. The first topic for discussion was the arrangements to be made for keeping infectious diseases away from children's hospitals. Many opinions were expressed. They were, generally speaking, divided between the idealistic view of those who suggested perfect but often too complicated devices, and the practical views, which emphasized the difficulty of getting rid of the old type hospitals, conceived on former standards and difficult, as a rule, to manage with modern ideas. Dr. Husler of Munich pointed out that a good location of the hospital, good air and light and an exacting technic by doctors and nurses, are of great importance. Dr. Lust of Brussels is a partisan of maximum attention to detail. He thinks that the dispensaries must be absolutely separated from the wards. He is suspicious of visiting relatives and friends, whom he asks to wear blouses and masks when visiting the children. Dr. R. Debré of Paris proposes that an assistant be charged with investigation of the homes of sick children, to discover infectious cases and order the necessary preventive measures before the admission of the child to the hospital. Dr. Béla Schick of New York stated that the problem is much more difficult to solve in hospitals devoted to chronic diseases than in ordinary ones. For the prevention of diphtheria it is better to practice as a routine toxin-antitoxin immunization in grown children or the use of anatoxin in babies. If weakly, undernourished children can be treated at home, it is better not to admit them to the wards. The principal contaminations come from the environment: children, parents or hospital staff.

The conference adopted the following conclusions:

It is absolutely necessary to fight against contagious diseases in hospitals by organization of proper conditions and exact supervision of the staff, the children and the things they use and touch. Management of admissions and medical care also must be exact, including especially an investigation at the homes of sick children. The nurses must be specialized and, as far as possible, not changed too often; every member of the staff must be carefully examined periodically. As for the babies, the wearing of a mask is recommended, as well as limitation of visits, and the isolation of the children in the waiting rooms. Overcrowding of wards and shortage of staff are calamitous.

Another subject, reported by Dr. Genevrier of Paris, was pulmonary tuberculosis in the school. He said that tuberculosis affects one in a hundred of the schoolboys or girls. The diagnosis requires a roentgen examination and consequently must be made in the dispensaries. The infection generally originates not with children but through teachers or school employees, who must be subject to periodic medical examinations. To these individual measures must be added every possible sanitary improvement of the school itself and of individual hygiene. Superinfections too often come from the family. The points emphasized were: the rôle of the school staff in infections, masked bacillus carriers, use in the school of the cutaneous reaction test, supervision of the child outside the school, routine examination of the school staff, usefulness of the pupil's card (book), the development of open-air classes and playgrounds, the limitation of working hours and the supervision of the diet of children.

BERLIN

(From Our Regular Correspondent)

Jan. 6, 1936.

Treatment of Detachment of Retina

After many experiments, Gonin in Lausanne, six years ago, made known his new method for treatment of ablatio retinae. Although much of his operative technic has been superseded by newer procedures, Gonin must be accredited with the discovery of the fact that in cases of retinal detachment a laceration is always present. Professor Löhlein spoke on this subject before the Berlin Medical Society. Ablatio occurs chiefly in myopic eyes but also in those showing senile or traumatic forms. In the first four decades of life, ablatio is much rarer than in the later years; of forty-five cases of Löhlein's own observation, eleven patients were from 10 to 40 years of age and thirty-two from 50 to 80. If one agrees with Gonin that retinal laceration is responsible in a majority of cases, so must one consider, as a second cause, a partial liquefaction of the vitreous humor. During the war, numerous cases of traumatic retinal lacerations were observed. It is frequently difficult to determine the exact location of the laceration. Usually it lies in the periphery of the superior temporal region. There appears to be a connection between the condition of myopic as well as of senile eyes and this location which leads toward degeneration.

Gonin's procedure consists in determining the location, opening the sclera and pricking with Paquelin's cautery in the region of the laceration in order that a scab may be formed. As the exact location of the laceration is frequently difficult to determine, the cautery needle may produce injuries and cicatrization may follow the scratching. Because of the crudity of the Paquelin method, other procedures have been sought that are based on the principle of determining an adhesive inflammation. Next to cauterization with alkali the most important procedure today is diathermic coagulation. Löhlein worked endlessly,

using procaine hydrochloride anesthesia, which obviated the hindrance of winking. The region of the laceration proper was "parchmentized" by a flat electrode; round about this area several perforations were made with a sharper electrode. The after-treatment is vital to success. During the first week the patient's head, completely bandaged and light tight, is not moved; then a first change of dressing takes place. Throughout the second week as well a state of quiet is maintained. During the third and fourth weeks the wearing of glasses that admit light through a narrow aperture facilitates complete cure. Professional care should be exercised for three months after the operation. Löhlein followed this procedure in forty-five cases. Of these, 42 per cent resulted in recovery, 24 per cent were improved and 34 per cent showed no improvement. Successful outcome of course is dependent on the special conditions of each separate case. In elderly persons, because of the weakness of the tissue, operation should not be attempted. Too great a loss of the vitreous humor during the operation or secondary hemorrhages often cause failure.

In regard to the prophylaxis of this condition, it would perhaps be possible to accomplish something in the course of the marriage consultation of hereditarily predisposed persons. Care should be exercised moreover in severe myopia because of the danger of traumas (the most frequent cause of detachment) from sports, especially from ball playing. Finally, it is advisable that patients with contusion of the eyeball remain in bed until, with the stopping of hemorrhage, examination may be undertaken.

The Crisis in Research on Twins

The racial-political stand of the German government has as its foundation a firm belief in the importance of hereditary as opposed to environmental influences. Results of research on twins have been taken as substantiating a preponderance of hereditary predispositions. The whole structure of this theory, however, has been severely shaken by the publication in the *Wiener klinische Wochenschrift* (**48**:868 [June 28] 1935) of an article by Professor Alfred Greil of Innsbruck which he calls "The Crisis in Pathologic Development of Twins: Etiology of Mongolian Idiocy." This article contains a plea for an entire reorientation in the field of research on twins. Not enough attention, he says, has heretofore been paid to certain essential facts of prenatal development. For him uniovular twins are a fortuitous occurrence, a minus variation due to a checking of the formation of the uniform amniotic cavity. In these separated sections the inequality of the sacs or inlets brings about a uniovular twin formation which may manifest itself in any of an uninterrupted teratogenic series of variations in deformed twins, ranging from gemini inequales, through epigastrii and epignathi to teratomatous conditions of the sacral tumor, fetal inclusion or tubulodermoid types. If the amniotic sections are fairly equal, normal uniovular multifetation (from twins to quadruplets) originates. These plural fetuses have always in common the chorion, vitelline sac and placenta, but separate amnionic cavities that may merge into one, although not necessarily.

When this explanation is accepted it follows that uniovular twins and quadruplets do not originate from the accidental splitting of the ovum itself into two or four cells. Twin formation is not fission. Accordingly, uniovular twins resemble in no way halved bodies of a single fetus. Pathologic asymmetry in the single fetus as well as in uniovular twins is not determined by the nuclear genotype. All discordances develop epigenetically (that is to say, influenced by environment), from absolutely homogenetic and genotypical cell material. These prenatal environmental influences are of much greater significance than the postnatal, which result from training and orientation in life.

Since there are no dichorionic uniovular twins, there is added to the problem of their environmental discordance the concordance of binovular twins.

All that which influences the mother during pregnancy may influence the prenatal milieu and in addition affect hereditary tendencies, the significance of which accordingly is greatly reduced. Among prenatal environmental factors may be mentioned an uneven distribution of blood through the umbilical vein as well as pregnancy toxins, exacerbated month by month and leading to cellular and histo-ecologic corresponding changes.

This new conception cannot, if accepted, fail to influence racial-hygienic and even racial-political ideology. Moreover, it permits one to glimpse in the far off future the possibility of therapeutic or formative intervention in intra-uterine processes.

Mixed Marriages in Germany

In the *Reichsgesundheitsblatt*, official organ of the state ministry of health, Dr. (of Philosophy) Göllner in dealing with so-called mixed marriages between Christians and Jews presents certain data on racial relationship which are not to be found as yet in the records of the marriage registries. During the World War these mixed marriages exceeded in number the marriages between Jews. Thus in 1915 to every 100 Jewish marriages there were 105 mixed marriages throughout Germany, and for Berlin the rate was 115 mixed to 100 Jewish. The fruit of these mixed marriages was 0.8 living birth against 2.7 living births among the purely Jewish. The surprising thing is that among the mixed marriages the proportionate number of males born is considerably greater than among the population as a whole. The average birth rate is 107 males to 100 females; in mixed marriages the number of males is 115. In those mixed unions in which the father was Jewish the males born number 119; when the mother was Jewish, 109.

Eggs as a Source of Food Poisoning

In the last year the German press has frequently carried reports of serious and even fatal illness resulting from the eating of duck eggs. Professor Dr. Beller of Ankara published in the *Reichsgesundheitsblatt* the results of an investigation of these cases undertaken by the ministry of health. The cases studied all presented dysenteric symptoms such as are caused by the Bacillus enteritidis of Gärtner or Bacterium breslaviense. This seemed at first readily explicable as due to the penetration of excrement through the egg shells, the habits of ducks being little more cleanly in this regard than those of chickens. However, although dysenteric diseases are frequently encountered in ducks and geese, it was found that in the cases investigated the causative agents could not have been communicated through the egg shells. An examination of 1,500 eggs showed positive cultures to be present in seven yolks. Doubtless it was here a question of infection acting through the blood stream. Hen's eggs appear to be less dangerous, for in chickens dysenteric disease may be caused by Bacterium gallinarum, which is not pathogenic in man. Infection from the partaking of hen's eggs is due chiefly to the bacillus of chicken tuberculosis, which is closely allied to the causative agent of tuberculosis in man. As it seldom leads to serious acute illness, raw hen's eggs emptied out of the shell are relatively harmless. Duck eggs, on the contrary, are as a rule only to be eaten after thorough cooking, never while in a raw or underdone condition as is the case, for example, when they are served with mayonnaise dressing. It is interesting that peasant folk refrain from eating duck eggs, apparently having learned from general experience the occasionally dangerous character of the eggs. It would seem on the face of it entirely possible by improved hygienic care of chickens and ducks to eradicate such of their diseases as, through their eggs, constitute a menace to man.

Experiments with Poliomyelitis

The director of a provincial hospital, Dr. Kibler of Hall in Württemberg, has made a report on the recent poliomyelitis epidemic in southern Germany. Eighty-six cases were admitted to the hospital within three months. Diarrhea was present in only twelve patients. In all, seventeen patients had paralysis. Nine of these complained of stiff neck, a symptom present in thirty-four of those admitted to the hospital. Excessive perspiration was observed in two cases. On the other hand, hypertension and a marked drowsiness as in epidemic encephalitis were frequently encountered. Of nerve reflexes, Babinski's and Oppenheim's were each twice positive. Paralysis appeared in feverish patients as well as in those free from fever. The lumbar puncture carried out in each case for diagnostic and therapeutic purposes showed sixty-five times a pressure exceeding 150, nineteen times above 300 and twice above 500. The number of cells permitted no conclusion as to the severity of the disease. With regard to protein content, Pandy's reaction was positive in thirty-eight cases. The blood picture had to be abandoned as a criterion, owing to the irregular influences of accompanying disorders. Two patients of the entire group died. Lumbar puncture for the purpose of relieving pressure was therapeutically successful.

The permeation of the entire population by the disease was greater in this epidemic than generally would be assumed. Incompletely developed cases somewhat resembling influenza frequently took an ambulant course with no paralysis remaining. A strict quarantine of entire communities appears to be the only way in which to obtain successful results in controlling this disease.

BUCHAREST

(From Our Regular Correspondent)

Jan. 2, 1936.

Ten Years' Study of Malaria Therapy

During the period 1925-1935, at the Bucharest Neurologic Clinic, 1,224 patients suffering from neurosyphilis were inoculated with malaria. In all cases subcutaneous injections were replaced by the intravenous method, because the period of incubation is shortened. The latent period averaged six days. Professor Paulian, chief of the clinic, endeavored to obtain at least eight attacks of fever but he thinks it best to have twelve attacks. After the cure by quinine, a chemotherapeutic treatment is commenced and administered for another month. Of 525 cases of dementia paralytica, 418, or 79.61 per cent, showed decided improvement. Among cases of syphilitic meningoencephalitis, 202, or 90.99 per cent, showed improvement. Of 140 cases of locomotor ataxia, 123, or 87.85 per cent, showed great benefit. Of 101 cases of tabes, seventy-eight, or 77.26 per cent, showed improvement. The mortality among 1,070 patients amounted to sixty-four cases, or 5.98 per cent, a considerable decrease in comparison with the figure obtained at the initial stage of malaria therapy, when it amounted to from 17 to 20 per cent.

The malaria therapy had a favorable action first on the mentality. In the spinal fluid the leukocytosis decreased first and then the albumin and globulin content. Finally the blood report improved. No improvement in the serologic manifestations may be regarded as a bad sign, and it renders necessary a repetition of the malaria therapy.

The Increase in the Price of Drugs

The law restricting imports has led to a scarcity of foreign made drugs. This is disastrous, as there are no high grade chemicals produced here. Some manufacturers tried off hand to establish factories but their products are inferior in quality. The restriction on imports gave rise to the development of a new industry, that of drug smuggling, but of course in this way only a small fraction of the demand can be supplied at fancy prices. The lack of foreign drugs resulted in a rise in prices of the staple medicines. A kilogram of aminopyrine cost wholesale in 1934 13,000 lei, while in 1935 it cost 18,000 lei; at retail it rose from 15,000 to 21,000 lei. The price of foreign quinine in September 1934 was 5,000 lei and at present it is 7,000 lei. The price of arsphenamine preparations jumped up by 33 per cent. English, French and American drugs and proprietary medicines cannot be obtained at all, because, by the law restricting imports, goods can be imported only on a compensation basis; that is, for goods exported. Germany, which is an extensive buyer of Rumanian wheat, maize, cereals, apples and wine, exports the largest quantity of drugs to Rumania. In the first quarter of 1935 Germany exported into Rumania 73,900 Kg. of drugs of a value of 41 million lei.

The worst of this situation is that also the home factories raised the prices of their pharmaceutical products. Following the intervention of the Rumanian Medical Association, the ministry of industry is going to take measures against the price policy of the home factories. The ministry has demanded enlightenment on the cost of raw materials, the cost of production, and the sale price; then the ministry of public hygiene will fix the sale price of home made medicines.

Providing the Rural Districts with Physicians

M. Titu Gane, state secretary of the ministry of public health, seeing the immense difference between the public health in cities and in villages, took a strong stand to improve the situation in the villages. In several places first aid stations and examining centers have been established, where the rural population is accorded free medical consultation and laboratory tests. To this end the government has appropriated more than 14 million lei in the last two years. With this will follow an increase in the number of village doctors. The government will make an agreement with doctors who are willing to locate in villages whereby they will be paid a monthly salary of 2,500 lei ($25), for which they are obligated to reside in the designated village and to hold consultations four hours daily. The government will create new districts, so that no physician shall have under his care more than five or six villages. The minister will see that every district is only as large as to allow the physician to visit the remotest village of his district within one day, by carriage. The roads are not fit for motor traffic.

For the campaign against tuberculosis, the national league has more than 86 million lei, from which sum 36 million has been collected from private contributions. This large sum will be devoted to the building of sanatoriums, which are badly needed.

It is hoped that this action of the ministry of public health will decrease the congestion of physicians in cities and will provide at least 1,500 physicians with a living.

Centenary of the Birth of Professor Kalinderu

The centenary of the birth of Professor Kalinderu has been celebrated all over the country, medical societies, almost without exception, having arranged special meetings with memorial addresses. Professor Kalinderu was born in Bucharest in 1835. After completing grammar school in Rumania he went to Paris, where he attended the university and then worked at different clinics, especially at the Salpêtrière, where he was engaged at the laboratory of the French neurologist Jean Martin Charcot. Here he wrote a treatise on cranial cephalotripsy. In 1870 he returned to Rumania and was appointed professor at the University of Bucharest, where with Paul Petrini he established the incidence of leprosy in Rumania and compiled statistics. He showed that the greatest number of cases of leprosy occurred in the Dobrudja and the swampy parts of the Danube regions. He established the familial character of this disease and tried to explore all the foci. He especially dealt with the nervous forms, which were so difficult to diagnose.

At the International Conference on Leprosy in Berlin, Kalinderu achieved great success with his new ideas on diagnosis and treatment. He read a paper on a type of leprosy identified by Prof. Georges Marinesco and described by Morvan. Kalinderu studied in association with Professor Marinesco the disturbances of sensation occurring in leprosy.

Kalinderu worked also in other fields. With Professor Babes, late director of the Bucharest antirabies institute, he investigated the pathogenesis of tuberculosis. He drew the attention of the medical world to the unpleasant consequences of the use of cosmetics containing lead. He was led to this discovery by observing that women in general but demimondaines in particular often complained of intestinal cramps and other symptoms characteristic of plumbism. He found that in many cases lead was introduced into the organism through the use of hair dyes.

During his career, Kalinderu wrote about fifty treatises, many of which were translated into foreign languages.

ITALY

(From Our Regular Correspondent)

Dec. 31, 1935.

The Congress of Orthopedics

At the fourteenth National Congress of Orthopedics recently held in Bologna, the first topic was obstetric trauma and obstetric paralysis of the shoulder. Prof. Giulio Faldini of the University of Parma reviewed the literature, reported some cases and concluded that obstetric trauma and obstetric paralysis of the shoulder occur about once in a thousand cases. Boys are more frequently affected than girls, the right side is more frequently involved than the left one, and bilateral involvement is rare. The most frequent cause of obstetric paralysis is obstetric trauma. Maneuvers on the arm to obtain disengagement of the shoulders are frequently the cause of injuries in the shoulder. Obstetric paralyses are due to interruption of the nerve plexus roots or to truncal lesions. Obstetric trauma of the shoulder is more frequent than obstetric paralysis and can be classified into distortions and fractures of either the clavicle or the scapulohumeral joint. The injury most frequently seen is epiphysiochondral detachment. In new-born infants the roentgen examination may show a fracture of the clavicle. At the age of 5 months the diagnosis can be made and can be confirmed at the age of 1 year, when the paralytic syndrome is definitely established. The performance of operations on the plexus is not advisable during the early life of the patient. It is better to resort to early electrotherapic and postural treatment and later to perform an operation. The prognosis is favorable.

The second official topic was internal lesions of the knee. Professor Delitala of Venice, in collaboration with Dr. Tommasini, presented an illustrated paper of more than 100 pages. Diseases of the menisci are the most important of all internal lesions of the knee. In cases of suspected meniscal rupture it is advisable to wait for the results of conservative treatment, because if partial ruptures take place transversely they may heal spontaneously. In complete meniscal rupture an early operation is advisable to avoid the development of secondary arthritis. A menisectomy and not a suture is the operation indicated. Satisfactory results are obtained in 80 or 90 per cent of the cases. The next congress of orthopedics will take place in Rome, and the official topic will be the treatment of open fractures.

Commemorations of Italian Anatomists

Prof. Luigi Castaldi of the University of Cagliari recently organized ceremonies in memory of Filippo Civinini, Filippo Pacini and Atto Tigri, which took place in Pistoja, the home town of these anatomists. Civinini, who was a teacher of pathology and surgical principles in the University of Pisa, left to posterity work on the bones, the structure of the placenta, and the spine, ligament and foramen that are named after him. He wrote a summary on embryology. Pacini is the discoverer of Pacini's corpuscles. Pacini's discovery of the reception of sensations by these ganglions opened the way to the development of esthesiology. Tigri established the behavior of the splenic veins and the existence of splenic endothelial cells and of splenic reticular connective tissue. The anatomic preparations on the reticulo-endothelial system made today are no different from those prepared with reticular tissues of the spleen by Tigri in 1849. He also made contributions on tubercle bacilli and the comma bacillus, which he isolated from the blood of patients with Asiatic cholera.

A Center for Hydrologic Research

A center of scientific research has been established at Salsomaggiore, near Parma, for studies on thermal springs. The new center is connected with the medical clinics of Milan and Genoa and with the obstetric clinic of Milan, and its purpose is to study the action of the waters of Salsomaggiore in diseases of internal medicine and in gynecologic disorders; their influence on various internal organs, and particularly on the glands of internal secretion. The research institute thus founded will constitute the nucleus of a more complete organization for the hydrologic training of physicians, which is being at present promoted by high Italian scientific authorities, headed by Professor Rondoni, "academician of Italy."

Results of the Government Examinations in Medicine

During the year 1934, 1,677 graduates in medicine took the government examinations for licensure in medicine and surgery. The examinations were successfully passed by 1,522 of that number, while 155 (about 9.35 per cent) failed. The University of Naples furnished the largest number of graduates (311). The largest number of graduates (231) were enrolled also at the University of Naples for their government examinations.

Studies on the Finger Prints

Prof. V. Tirelli of the University of Turin has reported to the Academy of Medicine his research on the hereditary transmissibility of the patterns of the finger prints. It seems that a marked uniformity of types may result from hereditary influences. Professor Tirelli's research leads him to believe that it is possible to apply mendelian laws to the familial transmissibility of certain composite types of finger prints.

Marriages

MARTIN J. RYAN JR., Harrison, N. Y., to Miss Elizabeth McCawley of New York in Carbondale, Pa., Dec. 28, 1935.

EDGAR L. AABERG, Peoria Heights, Ill., to Miss Jean Littlejohn of Springfield in December 1935.

HUBERT A. ROYSTER JR., Philadelphia, to Miss Elizabeth Rutan of Sewickley, Pa., January 17.

LLOYD B. SHEFFIELD, Dallas, Texas, to Miss Katie Pearl Reynolds of Waco, Dec. 28, 1935.

FREDERICK H. HOWARD, New York, to Miss Lulu O. Smith of Racine, Wis., Dec. 28, 1935.

ORVAL F. SWINDELL to Miss Dagmar T. Knudsen, both of Boise, Idaho, Nov. 23, 1935.

LLOYD A. STAHL to Miss Dorothy E. Stoneback, both of Allentown, Pa., January 1.

ROBERTO GUTIERREZ to Miss Virginia Clark Wathen, both of New York, February 1.

VANCE QUITMAN RAWLS, Red Level, Ala., to Miss Bessie F. Costen, Dec. 29, 1935.

Deaths

John Joseph Thomson ✠ Mount Vernon, N. Y.; Trinity Medical College, Toronto, Ont., Canada, 1902; member of the American Academy of Ophthalmology and Oto-Laryngology, American Laryngological, Rhinological and Otological Society and the American Otological Society; fellow of the American College of Surgeons; aged 56; chief of the ear, nose and throat department of the Lawrence Hospital, Bronxville; chief of the ear, nose and throat department, and president of the medical board, 1915-1924, the Mount Vernon Hospital, where he died, Nov. 13, 1935, of hepatic cirrhosis and chronic myocarditis.

William Stowe Rutledge ✠ Ruston, La.; University of Alabama School of Medicine, University, 1909; also a pharmacist; past president, secretary and treasurer of the Jackson-Lincoln Bi-Parish Medical Society; coroner of Lincoln Parish; served during the World War; aged 54; on the staff of the Ruston-Lincoln Sanitarium, where he died, Dec. 30, 1935, as the result of injuries received when his car overturned near Brandon, Miss.

Timothy Joseph Murphy ✠ Boston; Harvard University Medical School, Boston, 1892; past president and censor of the Norfolk District Medical Society; clinical professor of medicine, Tufts College Medical School; chief of staff of the Sanatorium Division of the Boston City Hospital and on the staff of St. Margaret's Hospital; aged 69; died, January 1, of lobar pneumonia.

Alvan Williams Atkinson ✠ Trenton, N. J.; Hahnemann Medical College and Hospital, Philadelphia, 1893; past president of the Mercer County Medical Society; fellow of the American College of Surgeons; chief, department of gynecology and obstetrics, William McKinley Memorial Hospital; aged 66; died, Dec. 25, 1935, of cerebral thrombosis and arteriosclerosis.

George W. Belshe, Trenton, Mo.; University Medical College of Kansas City, Mo., 1904; member of the Missouri State Medical Association; past president of the Grundy-Daviess Counties Medical Society; served during the World War; on the staff of the Cullers Hospital; aged 54; was burned to death, Dec. 17, 1935, in an automobile accident.

Edward James McDonough, Portland, Maine; Medical School of Maine, Portland, 1892; member of the Maine Medical Association; formerly professor of obstetrics at his alma mater; at various times on the staffs of the Maine General Hospital, Queen's Hospital and the Maine Eye and Ear Infirmary; aged 68; died, Dec. 30, 1935, of heart disease.

Jacob Harrison Shuford, Hickory, N. C.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1901; past president of the Catawba County Medical Society; fellow of the American College of Surgeons; served during the World War; on the staff of the Richard Baker Hospital; aged 56; died, January 15, of heart disease.

Virgil David Guittard ✠ Toledo, Ohio; Ohio Medical University, Columbus, 1907; veteran of the Spanish-American and World wars; health commissioner of Mason County, Ky., for four years; formerly physician to the U. S. Indian Service; aged 57; died, Dec. 25, 1935, at his home in Bowling Green, of cerebral hemorrhage.

Homer Clifton Oatman ✠ San Diego, Calif.; Hahnemann Medical College and Hospital, Chicago, 1895; fellow of the American College of Surgeons; aged 65; surgeon to the Scripps Memorial Hospital, La Jolla, San Diego General Hospital and the Mercy Hospital, where he died, Dec. 28, 1935.

James Nelson Douglas, Manasquan, N. J.; Hahnemann Medical College and Hospital of Philadelphia, 1905; served during the World War; on the staff of the Point Pleasant (N. J.) Hospital; aged 60; died, Dec. 23, 1935, of coronary occlusion and chronic valvular heart disease.

Elmore E. Curtis ✠ Saginaw, Mich.; Bennett College of Eclectic Medicine and Surgery, Chicago, 1885; for many years a member and past president of the board of education; on the staff of the Saginaw General Hospital; aged 74; died, Dec. 22, 1935, of lobar pneumonia and myocarditis.

Constantine Clinton Barnett, Huntington, W. Va.; Howard University College of Medicine, Washington, D. C., 1899; member of the American Psychiatric Association; formerly medical superintendent of the State Hospital, Lakin; aged 66; died, Dec. 29, 1935, of hypertensive heart disease.

William Edgar Rice, Raton, N. M.; Miami Medical College, Cincinnati, 1891; member of the New Mexico Medical Society; formerly coroner of Douglas County, Ill.; aged 70; on the staff of the New Mexico Miners' Hospital, where he died, January 7, of lobar pneumonia.

John Joseph Gailey, Waterbury, Conn.; Medical School of Maine, Portland, 1898; fellow of the American College of Surgeons; formerly member of the city board of health; obstetrician to the Waterbury Hospital; aged 72; died, Dec. 30, 1935, of cardiovascular renal disease.

Floyd Snelson Kidd, Fort Snelling, Minn.; State University of Iowa College of Medicine, Iowa City, 1907; member of the medical staff of the Veterans Administration Facility; served during World War; aged 52; died suddenly, Dec. 30, 1935, of coronary disease.

John Francis Donohue ✠ Oyster Bay, N. Y.: University of Buffalo School of Medicine, 1914; on the staff of the North Country Community Hospital, Glen Cove; aged 46; died suddenly, January 11, in a sanatorium at Goshen, of acute myocarditis.

Winthrop Dodd Mitchell, Worcester, Mass.; Bellevue Hospital Medical College, New York, 1887; fellow of the American College of Surgeons; surgeon and medical director emeritus, St. Michael's Hospital, Newark, N. J.; aged 73; died, Dec. 30, 1935.

Albert A. Ghriskey, Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1880; on the staffs of the Pennsylvania and Episcopal hospitals; aged 76; died, Dec. 28, 1935, of arteriosclerosis and coronary thrombosis.

William Carson Officer, Monterey, Tenn.; University of Tennessee Medical Department, Nashville, 1902; member of the Tennessee State Medical Association; owner of a sanatorium bearing his name; aged 55; died suddenly, Dec. 24, 1935.

Edwin Wilson Ludlow, Urbana, Ohio; Medical College of Ohio, Cincinnati, 1883; member of the Ohio State Medical Association; past president of the Champaign County Medical Society; aged 74; died, Dec. 29, 1935, of diabetes mellitus.

John Francis Gorman, Philadelphia; Jefferson Medical College of Philadelphia, 1906; member of the Medical Society of the State of Pennsylvania; served during the World War; aged 55; died, Dec. 26, 1935, of cerebral thrombosis.

Egbert Laird Mortimer, Baltimore; Maryland Medical College, Baltimore, 1903; member of the Medical and Chirurgical Faculty of Maryland; aged 63; died, January 5, in St. Agnes' Hospital, of carcinoma of the colon.

Edgar Albert Lewis, Rockport, Mo.; University Medical College of Kansas City, Mo., 1905; member of the Missouri State Medical Association; aged 58; died, Nov. 7, 1935, in the Missouri Methodist Hospital, St. Joseph.

John Francis Ury, Columbus, Ohio; Ohio State University College of Medicine, Columbus, 1935; aged 26; intern at St. Francis Hospital, where he died, Dec. 24, 1935, of acute membranous enterocolitis and paralytic ileus.

John Ewing Brown, Los Angeles; Jefferson Medical College of Philadelphia, 1883; formerly professor of gynecology, Omaha Medical College; for many years health officer of San Pedro; aged 77; died, Dec. 23, 1935.

George Gansey O'Connell, Chicago; Rush Medical College, Chicago, 1908; member of the Illinois State Medical Society; aged 50; died, Nov. 23, 1935, of hemiplegia, hypertension, arteriosclerosis and mitral stenosis.

Henry Sinclair Hutchinson, Binghamton, N. Y.; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1893; aged 67; died, Dec. 25, 1935, in a hospital at St. Petersburg, Fla.

Evan C. Mills, San Francisco; Hahnemann Medical College of the Pacific, San Francisco, 1918; aged 56; died, Dec. 4, 1935, of chronic nephritis, cardiac hypertrophy, pulmonary tuberculosis and chronic cholecystitis.

George Pratt Garland, Eunice, La.; Tulane University of Louisiana Medical Department, New Orleans, 1907; part owner of the Eunice Clinic and Hospital; aged 53; died in December, 1935, of pneumonia.

Charles Warren Du Bois, Los Angeles; Cornell Unversity Medical College, New York, 1927; member of the California Medical Association; aged 33; was accidentally shot and killed, Dec. 17, 1935.

Eugene Barnard Haden, Panora, Iowa; University of Nebraska College of Medicine, Omaha, 1895; member of the Iowa State Medical Society; aged 69; died, Dec. 24, 1935, of heart disease.

Don Dickinson Brooks, Connellsville, Pa.; Maryland Medical College, Baltimore, 1910; served during the World War; school physician; aged 48; died, Dec. 25, 1935, of pulmonary tuberculosis.

Alice Virginia Duffield, San Diego, Calif.; Hahnemann Medical College and Hospital, Chicago, 1899; aged 80; died, Dec. 23, 1935, in National City, of hypertension and cerebral hemorrhage.

Daniel Hiestand, Allentown, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1881; aged 79; died, Dec. 30, 1935, of injuries received in a fall ten days previously.

Robert L. Kern, Richmond, Va.; University College of Medicine, Richmond, 1899; member of the Medical Society of Virginia; aged 64; died, Dec. 24, 1935, of nephritis and myocarditis.

William Henry Leslie, St. Petersburg, Fla.; Rush Medical College, Chicago, 1893; formerly a medical missionary; aged 67; died, Dec. 25, 1935, in a local hospital, of coronary occlusion.

George Robert Love, Preston, Minn.; Minneapolis College of Physicians and Surgeons, 1910; aged 51; died, Dec. 18, 1935, of hypertension, nephritis, cerebral hemorrhage and pneumonia.

Erwin L. Godfrey, Colon, Mich.; Hahnemann Medical College and Hospital, Chicago, 1876; Chicago Homeopathic Medical College, 1879; aged 83; died, Dec. 14, 1935, of angina pectoris.

Lawson A. McCurdy, Indianapolis; Central College of Physicians and Surgeons, Indianapolis, 1891; aged 74; died, January 2, of bronchopneumonia and chronic myocarditis.

David Patterson Fredericks, Patton, Calif.; Jefferson Medical College, Philadelphia, 1894; aged 63; died, Nov. 29, 1935, of a ruptured duodenal ulcer, and arteriosclerosis.

Israel Fletcher Longley, St. John, N. B., Canada; Queen's University Faculty of Medicine, Kingston, Ont., 1910; served during the World War; aged 50; died, Nov. 21, 1935.

John H. Powell, Atlanta, Ga.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1893; member of the Medical Association of Georgia; aged 66; died, Nov. 16, 1935.

William Alexander Shearer, Rock Tavern, N. Y.; Rush Medical College, Chicago, 1904; since 1928 health officer of the town of Hamptonburg; aged 58; died, Dec. 13, 1935.

Thomas Harris Boyle Runnalls, Carbonado, Wash.; University of Oregon Medical School, Portland, 1912; aged 47; died, Nov. 17, 1935, at Tacoma, of pneumonia.

Samuel Nelson Miller, Middleton, N. S., Canada; University of the City of New York Medical Department, 1875; aged 85; died, Dec. 16, 1935, of coronary thrombosis.

John Leonidas Hobbs, Los Angeles; Marion-Sims College of Medicine, St. Louis, 1899; aged 64; died, Dec. 15, 1935, of cerebral arteriosclerosis and hypertension.

Florence Josephine Murcutt, Inglewood, Calif.; Woman's Medical College of Pennsylvania, Philadelphia, 1907; aged 71; died, Dec. 13, 1935, of a skull fracture.

Charles Alfred Hull, Liberty, Ohio; Starling Medical College, Columbus, 1904; member of the Ohio State Medical Association; aged 59; died, Dec. 15, 1935.

C. W. Gleaves, Wytheville, Va.; Medical College of Virginia, Richmond, 1879; also a bank president; aged 80; died, Dec. 12, 1935, of bronchopneumonia.

Adam M. Autrey, Houston, Texas; University of Tennessee Medical Department, Nashville, 1886; aged 72; died, Dec. 28, 1935 of hypostatic pneumonia.

Carl Hoffman, Seattle; John A. Creighton Medical College, Omaha, 1896; aged 63; died, Dec. 1, 1935, of coronary thrombosis and chronic myocarditis.

Ellen Maria Kirk, Cincinnati; New York Medical College and Hospital for Women, 1877; aged 87; died, Nov. 29, 1935, of bronchitis, in Belvidere, Ill.

Mary Elizabeth MacLeod, St. John, N. B., Canada; Northwestern University Woman's Medical School, Chicago, 1892; aged 83; died, Dec. 12, 1935.

Rutledge T. Wiltbank, Philadelphia; Hahnemann Medical College and Hospital of Philadelphia, 1891; aged 82; died, Dec. 27, 1935, of arteriosclerosis.

John Mitchiner Rumph, Tatum, N. M.; Southern Medical College, Atlanta, 1893; aged 85; died in December 1935, of acute yellow atrophy of the liver.

August Dutzi ✠ St. Louis; St. Louis University School of Medicine, 1905; aged 66; died, Dec. 22, 1935, in the Jewish Hospital, of heart disease.

James Robert Cranford, Sasser, Ga.; Atlanta Medical College, 1895; member of the Medical Association of Georgia; aged 65; died, Nov. 29, 1935.

Stuart Calvin Runkle ✠ Philadelphia; Jefferson Medical College of Philadelphia, 1888; aged 74; died, Dec. 29, 1935, of carcinoma of the throat.

Vesselius Davis, Wapella, Ill.; Western Reserve University Medical Department, Cleveland, 1882; aged 76; died, Dec. 20, 1935, of arteriosclerosis.

Nellie Virginia Mark, Baltimore; Boston University School of Medicine, 1884; aged 78; died, Dec. 3, 1935, in Los Angeles, of acute gastro-enteritis.

David John Evans, Los Angeles; Western Pennsylvania Medical College, Pittsburgh, 1903; aged 62; died, Dec. 22, 1935, of cerebral hemorrhage.

Rupert William Gliddon, St. Thomas, Ont., Canada; University of Toronto Faculty of Medicine, Toronto, 1913; aged 49; died, Dec. 7, 1935.

Joseph Theodore Wright, Winnipeg, Manit., Canada; Trinity Medical College, Toronto, 1901; aged 60; died, January 6, of coronary occlusion.

Edward M. Bell, Mill Spring, N. C.; University of Nashville (Tenn.) Medical Department, 1896; aged 63; died, January 17, of angina pectoris.

Charles Carlyle Tatham, Edmonton, Alta., Canada; University of Toronto (Ont.) Faculty of Medicine, 1900; aged 58; died, Dec. 25, 1935.

August Adolph Drossel, San Francisco; Cooper Medical College, San Francisco, 1889; aged 67; died, Dec. 13, 1935, of cerebral sclerosis.

Elmer E. Goucher, McMinnville, Ore.; Willamette University Medical Department, 1882; aged 77; died, Dec. 28, 1935, of heart disease.

Anthony W. Graham, Millersburg, Ohio; University of Missouri School of Medicine, Columbia, 1876; aged 84; died, Nov. 26, 1935.

Ernest Augustus McDonald, Toronto, Ont., Canada; University of Toronto Faculty of Medicine, 1905; aged 57; died, Dec. 12, 1935.

Maurice Ernest Thomas, Toronto, Ont., Canada; University of Toronto Faculty of Medicine, 1922; aged 38; died, Dec. 10, 1935.

Abraham Weatherly Boyd, Chattanooga, Tenn.; University of Georgia Medical Department, Augusta, 1885; aged 75; died, Dec. 13, 1935.

John Milton Shriver, Waynesburg, Pa.; Jefferson Medical College of Philadelphia, 1880; aged 81; died, Dec. 17, 1935, of heart disease.

Alberto Horatio Stockbridge, Lynn, Mass.; Tufts College Medical School, Boston, 1905; aged 62; died, Dec. 24, 1935, of heart disease.

Joseph Aloysius Kearns, Phelpston, Ont., Canada; University of Toronto Faculty of Medicine, 1910; aged 50; died, Dec. 3, 1935.

James E. McHugh, Fort Wayne, Ind.; Fort Wayne College of Medicine, 1893; aged 68; died, Dec. 2, 1935, in the Lutheran Hospital.

Charles Robert Cuthbertson, Toronto, Ont., Canada; Victoria University Medical Department, Coburg, 1886; died, Dec. 19, 1935.

Abel T. Bruere, Creamridge, N. J.; Jefferson Medical College of Philadelphia, 1886; aged 79; died, Dec. 24, 1935, of nephritis.

Julius Gerhart Stammel, Fort Lauderdale, Fla.; Medical College of Ohio, Cincinnati, 1907; aged 51; died in November 1935.

Frederick M. Sutton, Upper Lake, Calif.; Atlanta College of Physicians and Surgeons, 1901; aged 57; died, Dec. 14, 1935.

Israel Melbourne Lovitt, Yarmouth, N. S., Canada; Harvard University Medical School, Boston, 1885; died, Dec. 7, 1935.

William Russell Dove ✠ Harman, W. Va.; Medical College of Virginia, Richmond, 1907; aged 61; died, Nov. 21, 1935.

Edson W. Masten, Cato, N. Y.; Albany Medical College, 1879; aged 78; died, Dec. 31, 1935, of chronic myocarditis.

Peter B. Robertson, Windsor, Ont., Canada; Trinity Medical College, Toronto, 1891; aged 71; died, Dec. 25, 1935.

Stephen Madatian Long, Fresno, Calif.; Albany (N. Y.) Medical College, 1894; aged 68; died, Nov. 12, 1935.

Louis Hannah, Sylvania, Ga.; Atlanta College of Physicians and Surgeons, 1911; aged 48; died, Nov. 22, 1935.

William Franklin Skillern, Hixson, Tenn. (licensed in Tennessee, in 1889); aged 77; died, Dec. 12, 1935.

Bureau of Investigation

CURARINA

An Alcoholic Cure-All Declared a Fraud

"Curarina," or, to give it its full name, "Curarina de Juan Salas Nieto," is a good example of the way in which the public can be swindled by "patent medicine" exploiters when newspapers and radio stations will sell them space and time for the purpose of making the contact between the swindler and the swindled. Curarina has been sold in the United States by one Richard Diener, who describes himself as the agent for the Curarina Agency at Oxnard, Calif.

Part of the advertising of this nostrum was a sixteen-page leaflet in which the alleged marvelous therapeutic virtues of this "patent medicine" were described and testimonials were reproduced. There was also published in the same booklet what purported to be the results of a chemical examination of the preparation. It was one of those analyses that are so popular with "patent medicine" concerns which make a pretense of frankness. The analysis gave little information regarding what was *in* the product but did state what was *not in* it. The examination, according to the booklet, was made by "Dr. Frederick V. Bruchhausen, O. O., Professor of Pharmaceutical Chemistry. Member of the Medicinal Committee of the University of Wurzburg (Germany)" and was from the "Pharmaceutical Institute and Laboratory for Applied Chemistry of the University of Wurzburg." It was dated January 1932. The report stated that, when observed under a quartz lamp, Curarina had "a whitish-greenish-yellowish fluorescence." Further, it had a specific gravity of 0.9568; an alcohol content of 32.3 Gm. in 100 cc.; extractives, 1.5 Gm. in 100 cc.; ash content, 0.348 Gm. in 100 cc. The examination of the liquid part of Curarina to determine the "nature of the denaturant" proved negative for methyl alcohol, acetone, pyridine bases, phthalic acid and volatile poisons. The tests for heavy metals, saponin and alkaloids were all negative. In other words, the analysis showed positively merely that it had over 30 per cent of alcohol, a small amount of extractives, and a small ash content.

The important information, of course, was that the stuff contained over 30 per cent of alcohol. This information took on added interest when one read the booklet and found that Curarina was described as "an excellent tonic against general debility" and would stimulate the appetite "if taken either pure or mixed with some liquor." The idea of mixing a "patent medicine" containing over 30 per cent of alcohol with liquor might lead one to infer that the stimulation would not be confined to the appetite.

The booklet stated that Curarina was originally invented as a "sure remedy for snake and insect bites." However, according to Mr. Diener, the California agent, "Curarina is the only remedy known today which will quickly bring a person back to normal health who is afflicted with angina pectoris and other heart troubles as well as diabetes." Mr. Diener further states that "no one ever needs to lose his arms, legs or his life from blood poisoning," for by just applying Curarina, full strength, and taking the medicine internally, one would recover. Further, "no person will have apoplectic strokes after using at least six bottles of Curarina."

Curarina was especially valuable, according to Mr. Diener, for "colds, grippe, lung and other bodily disorders, tonsillitis, tetanus, and high blood pressure." It was a preventive of "malaria, yellow fever, black vomit." One teaspoonful of Curarina taken every hour would cure appendicitis and one tablespoonful every two hours was recommended for smallpox. Curarina was not recommended as a cure for cancer, but Mr. Diener said that when used in cases of cancer "it reduces the pain and stops progress of such disease." Incidentally, Curarina was a wonderful preparation for "distemper in dogs."

One of Mr. Diener's important testimonials purported to come from "Dr. G. F. Mendez, present Minister of Public Works of the Republic of Venezuela." Then there were testimonials from less important people, such as Mr. R. O. Thomas of Carpinteria, Calif., who heartily recommended Curarina "to anyone having angina pectoris or hardening of the arteries." Mrs. Webb Wilcox of Wheeler's Hot Springs, Calif., claims to have been entirely cured of heart trouble, diabetes and kidney trouble by the use of Curarina. Mr. E. A. Swank of Hardin, Mont., reports that one of the cowboys in his locality who had "yellow jaundice" took three bottles of Curarina and was cured. Mr. H. E. Ward of Webster Groves, Mo., had a little dog with eczema which the veterinarians had been unable to cure, but it was cleared up with Curarina.

Now comes that efficient but overworked arm of the government, the Office of the Solicitor of the Post Office Department. Hon. Karl A. Crowley, Solicitor, in a memorandum addressed to the Postmaster General, recommended that the Curarina Agency and Richard Diener have the United States mails closed to them because they were engaged in conducting a scheme for obtaining money through the mails by fraudulent pretenses and promises. The Curarina Agency and Mr. Diener were notified Oct. 1, 1935, that they would be called on to show cause by November 6 why a fraud order should not be issued against them. No appearance was entered by any one in behalf of either the agency or Mr. Diener, but a written answer to the charges was submitted through Mr. Charles F. Blackstock, an attorney of Oxnard, Calif.

Mr. Crowley points out in his memorandum that Richard Diener has been engaged in the sale through the mails of a preparation called "Curarina de Juan Salas Nieto" as a cure for practically every disease known to man, to say nothing of diseases of animals. He states, further, that Mr. Diener has secured business through newspaper advertisements, radio broadcasts and by other means. He then goes into detail regarding the claims made by Diener in the material that he would send to those with whom he had got in contact by radio, newspaper or other advertising.

The federal chemists analyzed Curarina and reported that it consisted of plant extractive matter in 32 per cent of alcohol; the analysis showed the presence of potassium, phosphate, chloride, sulphate, carbonate and a small trace of alkaloids, with tannin and saponin indicated. The plants from which the extractives were taken had no recognized value in modern medicine as a remedy for any disease whatever. The Solicitor learned from physicians and veterinarians who were competent to express an opinion that Curarina had no essential value, either as a palliative or as a curative agent. Mr. Crowley pointed out that Mr. Diener, who was promoting the stuff, is not a physician and has no medical training. In fact, Diener is said to have admitted to the Post Office inspector who investigated the matter that he does not even know the ingredients of the preparation and that he is wholly unqualified to pass on symptoms of diseases or to state how the alleged therapeutic effects would be accomplished.

In view of all the evidence, Solicitor Crowley recommended that a fraud order be issued. Postmaster General Farley on Nov. 11, 1935, closed the mails to the Curarina Agency and Richard Diener.

MISBRANDED "PATENT MEDICINES"

Abstracts of Notices of Judgment Issued by the Food and Drug Administration of the United States Department of Agriculture

[EDITORIAL NOTE: The abstracts that follow are given in the briefest possible form: (1) the name of the product; (2) the name of the manufacturer, shipper or consigner; (3) the composition; (4) the type of nostrum; (5) the reason for the charge of misbranding and (6) the date of issuance of the Notice of Judgment—which may be considerably later than the date of the seizure of the product.]

Alberty's Food.—Alberty Food Laboratories, Hollywood, Calif. Composition: Essentially wheat flour, shorts and bran. "Body builder," etc. Fraudulent therapeutic claims.—[*N. J. 23020; April, 1935.*]

Ammon's Antiseptic Wash.—Home Remedy Co., Pittsburgh. Composition: Essentially plant drug extracts and water; accompanied by a box of suppositories consisting essentially of boric acid, ammonium alum, fats and waxes. Not antiseptic when used as directed. Fraudulent therapeutic claims.—[*N. J. 23235; May, 1935.*]

Pheno-Isolin.—Scientific Mfg. Co., Scranton, Pa. Composition: Essentially turpentine, camphor, menthol and resin dissolved in an oil. For boils, carbuncles, ulcerated cancer, neuritis, coughs, etc. Not a ready germicide or an antitoxin, as represented. Fraudulent therapeutic claims. [*N. J. 23230; May, 1935.*]

Correspondence

OXYGEN TREATMENT

To the Editor:—The dramatic recurrence of a situation that has become a dangerous one occurred recently and prompts me to write this letter.

A child, aged 9 years, suffering from bronchopneumonia, was in an oxygen tent at a well known hospital in New York. I was asked to see the child in consultation, although the doctor told me when I arrived that it seemed to be of no use. The child was as blue as a blue serge coat, the pulse was 160, the temperature 108. Although the child had been in a tent, the nurse said that he had been blue all day. The oxygen concentration in the tent was 28 per cent. Although it seemed quite hopeless, I increased the oxygen flow by adding an extra tank and ran in 32 liters of oxygen per minute until the concentration rose to 60 per cent. The child's color immediately began to improve and the pulse began to fall; the improvement continued until the pulse came down to 120, the temperature gradually falling to 101, and the child, whose eyes had previously rolled upward, became conscious. The breathing, which had appeared terminal and very shallow, took on a deeper and more vigorous character.

The point which this illustrates is that a number of oxygen tent manufacturers have sold tents saying that it is unnecessary to test the oxygen concentration if a certain flow, between 7 and 12 liters per minute, is run in. In many instances the tent leaks to such a degree that the recommended flow will give a concentration of less than 30 per cent. In three other instances in hospitals in New York I have found that between 30 and 40 liters per minute was necessary in order to keep the oxygen concentration between 50 and 60 per cent. In two instances the cover of the icebox made so little contact, owing to worn out rubber gaskets, that the oxygen escaped in this way. In a third instance the water bottle top at its connection with the glass leaked to such an extent that very little oxygen was actually entering the tent.

In one hospital in which I was for a time the medical consultant, disappointment with oxygen therapy could be traced to a practice of giving 7 liters a minute of oxygen in a tent that leaked like a sieve. In these various instances which I quote there was no testing of the oxygen concentration within the tent. This procedure, which takes a minute and a half to do, can of course be learned in a half hour by almost any attentive individual, and it seems almost criminal to me to witness hundreds of times an oxygen tent being prescribed without any prescription of dosage. In the various articles which I have written on this subject I have attempted to emphasize that the dose of oxygen be prescribed and not simply an oxygen tent, and that the oxygen concentration be tested either by a technician, a nurse or the doctor himself at least three times during the day. In many instances, for example, of congestive heart failure, a diuresis does not set in unless the oxygen concentration is raised to 50 or 60 per cent.

I think the importance of prescribing the dose of oxygen should be emphasized in medical school teaching. Benash, of the Linde Air Products Company, informs me that in hundreds of instances of tent usage throughout the country it is uncommon to have the oxygen concentration within the tent actually tested. This matter impresses me as a very serious one. The nasal catheter, with the method which I suggested of putting the catheter in the nasopharynx and running in from 4 to 5 liters of oxygen a minute, will give a concentration of 38 per cent, which is higher than that frequently obtained in a poorly run oxygen tent. Employing the modification of that method, by which the catheter is put in the oral pharynx, Wineland and Waters have obtained concentrations of 50 per cent in the inspired air.

The oxygen tent in which the air is cooled and dried may become a therapeutic procedure of crucial value provided the oxygen concentration is elevated above 50 per cent and in some cases for periods of ten to twelve hours to as high as 90 per cent.

Sayers, in unpublished work, shows that animals can live in pure oxygen sixteen hours a day without harmful effects. I have confirmed Sayers' work but have also shown that if animals are kept in 50 per cent oxygen instead of air the remainder of the time, pulmonary edema develops. However, it appears safe from animal experiments to administer from 90 to 100 per cent oxygen for ten to twelve hours a day and 50 per cent oxygen the rest of the time. This work I have mentioned in an article on the therapeutic use of helium in the December *Annals of Internal Medicine*. I mention it because there was in that article an example of an infant that had sudden bilateral pneumothorax in which the dyspnea was relieved only when the oxygen concentration in the tent was raised to 90 per cent.

It seems to me, therefore, that emphasis on the importance of prescribing the dose of oxygen, namely, the oxygen concentration desired, could profitably appear. Necessarily, no tent should be used unless the oxygen concentration is tested as a routine. At the present time it is safe to say that over 90 per cent of the oxygen tents in use in the United States are not tested for the oxygen concentration within the tent.

In the use of helium it is obvious, as I have mentioned in the article referred to, that the dosage of helium employed is of even greater importance, and I think it would be unfortunate to have helium used by any one who is not equipped to determine the amount of oxygen in a helium-oxygen atmosphere.

ALVAN L. BARACH, M.D., New York.

FIRST SURGICAL OPERATION ON THE HEART

To the Editor:—In the Correspondence column of THE JOURNAL, Sept. 7, 1935, is a communication from Dr. Charles H. Garvin of Cleveland calling attention to the fact that on July 9, 1893, Dr. Daniel Hale Williams, Negro surgeon of the Provident Hospital in Chicago, performed a successful surgical exploration of the heart for a stab wound. Dr. Williams later recorded his case in the *New York Medical Record* (**51**:437 [March 27] 1897) under the title "Stab Wound of Heart and Pericardium." Dr. Garvin was stimulated to write this article after reading a report by Drs. George Benet and Charles Spivey in the June 1 issue of THE JOURNAL because these physicians stated that "the first recorded attempt to suture a stab wound of the heart was made by Cappelen in 1895."

Dr. Garvin has further stated in the leading editorial of the November 1935 issue of the *Journal of the National Medical Association* that Dr. Williams "takes priority in successful operation for stab wound of human heart."

Since Dr. Benet's statement rested on information derived from me, I feel it proper to call attention here to the fact that Dr. Daniel Williams in his own report of his case stated that "there was no hemorrhage from the heart or pericardium." Dr. Williams then proceeded to close the wound in the pericardium, having found no wound in the heart. The hemorrhage apparently came from division of the internal mammary vessel. In view of this and in view of a study of Cappelen's original report (*Norsk. mag. f. Lægevidensk.* **11**:285, 1896) it seems only fair to give to Cappelen priority in making a deliberate attempt to suture a wound of the heart.

I cannot give accurate data concerning first attempts to suture wounds of the pericardium, in which category Dr. Williams' case belongs, but it is known that Romero of Barcelona as early as 1819 practiced pericardiostomy for pericarditis (see

Baizeau, Mémoire sur la ponction du péricarde au point de vue chirurgical, *Gaz. de méd. et de chir.*, Paris, 1868, p. 565). It is indeed possible and from my historical researches probable that the case reported by Dr. Williams was the first case in which the pericardium was sutured for a wound.

ELLIOTT C. CUTLER, M.D., Boston.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

CONSTIPATION IN CHILDREN

To the Editor:—I have under my care a five year old youngster who has had clay colored stools for the last three years. The stools are of the constipated type, small marble-like lumps. The bowels are moved once daily. Treatment has been of no avail. Please advise as to cause and treatment. Physical examination otherwise is negative.

M.D., New York.

ANSWER.—Constipation in a 5 year old child, accompanied by no impairment in health, has been termed simple constipation. The most common cause is faulty early training. If the habit of regular defecation is not early established, the infant or child will develop this symptom. Other causes that may be mentioned are errors in diet, especially excessive fat, causing soapy stools, deficiency of tone in the abdominal or intestinal muscles, a deficient secretion of intestinal juices, and lack of water. In certain individuals of a nervous type or temperamental character the habit of constipation is more frequent. Organic causes such as stenosis of the anus or rectum, spasm of the sphincter muscle, fissure of the anus, or rectal polyp must be considered. Spastic constipation is rare in childhood.

The treatment consists in establishing regularity in habits of defecation. In the older child it may be advisable to diminish the quantity of milk and increase the supply of pulpy fruits and vegetables in the diet. Coarse cereals containing bran may be added, and the malt sugars may be substituted for sucrose. Honey and molasses are often used with good effect. A dose of liquid petrolatum at night in obstinate cases is often indicated, and a preparation of liquid petrolatum with agar is sometimes more effective than the oil alone and has the added advantage that it is not usually passed unconsciously as is the oil, thus avoiding staining of underclothing. Plenty of water between meals is recommended. The most important factor is training the child into a regular habit. A definite time should be fixed, most preferably immediately after breakfast. By proper instruction, the child must be taught to acquire the habit of going to stool and of starting his own evacuation, by correct muscular coordination. Any organic defect that might be a cause of the constipation should be suitably remedied.

SKIN REACTION WITH ARSENICALS

To the Editor:—Will you kindly tell me which are the characteristics of the skin reactions due to trivalent and to pentavalent arsenicals, and possibly the literature on the subject?

M.D., Rhode Island.

ANSWER.—Inorganic arsenic, whether trivalent or pentavalent, produces in most cases as evidence of acute poisoning an erythema sometimes described as erysipeloid or scarlatiniform. Urticaria and papular eruptions also are described. Less often it causes vesicular, bullous or even ulcerative eruptions. Herpes zoster is occasionally reported as a sequel of acute poisoning with arsenic.

Chronic poisoning with inorganic arsenic is much commoner, taking the form of pigmentation of the skin of a dirty gray or yellowish brown color, distinguished from the pigmentation of Addison's disease by not affecting the mucous membranes. The face, neck, axillae and abdomen are involved first. By far the commonest evidence of chronic poisoning by arsenic is the keratosis, papular and localized on the palms and soles. It begins about the sweat ducts but later may cause diffuse thickening of the whole area. This keratosis is an important lesion, for it not seldom ends as a malignant, prickle cell epithelioma.

Similarly there is no strict division, as concerns skin eruptions, between the trivalent and pentavalent organic arsenicals. While the trivalent arsphenamine group is better known as a producer of various skin eruptions, this unenviable reputation is likely to be soon cast in the shade if the use of the pentavalent acetarsone continues to increase, for it causes similar eruptions in from 2.5 to 7 per cent of the cases in which it is employed, far exceeding the frequency of dermatitis caused by arsphenamine.

J. E. Moore (The Modern Treatment of Syphilis, Springfield, Ill., and Baltimore, C. C. Thomas, 1933, p. 79) divides these eruptions into sensitizing and nonsensitizing. Urticaria occurs commonly as part of the nitritoid reaction, but a scarlatiniform erythema may take its place. These subside as the reaction passes, whether consequent to the intramuscular injection of epinephrine or without it.

Along with the febrile reaction occurring so frequently after the first or second injection of one of these drugs, an erythematous or urticarial eruption may appear. This subsides with the fever and ordinarily does not recur after subsequent injections. There is not much itching with these eruptions. In place of them, herpes zoster or herpes simplex may occur.

H. S. Keim (Erythema of the Ninth Day, *Arch. Dermat. & Syph.* **31**:291 [March] 1935) has recently revived interest in Milian's conception of an erythema occurring on the ninth or tenth day after the first injection of any of the arsphenamines. In his series of ten such cases, one had to be excepted because of a mild leukopenia and later a slight icterus with pruritus and increase of bilirubin in the blood stream. With this exception, the eruptions were scarlatiniform or morbilliform but lacked symptoms allowing their classification as real measles or scarlatina as Milian thought them. Considerable fever, up to 105 F. in one case, accompanied the eruption, and pharyngitis, stomatitis, vomiting and photophobia occurred in different cases. The reaction is due to some part of the drug, though Keim thinks possibly not to its arsenic.

It is a self-limiting reaction in spite of continued administration of the medicine, clearing in three or four days. Itching is slight. The eruption appears usually on the trunk and extremities first. The superficial lymph glands are usually enlarged. It occurs mostly after mild dosage and in younger patients. Women are more liable than men to develop it.

The fixed eruption is due to a localized sensitization to one of the arsphenamines. It appears as a single plaque or a few of them, oval or round, pink, yellowish or brownish red. As it subsides in a few days to a week, pigmentation is often left. Following the next injection the same area reddens and swells and several similar ones appear, passing through the same evolution. In severe cases these may be bullous. They seldom are of importance if the use of the drug is discontinued.

Of much greater importance are the eruptions occurring late in the course of injections and beginning usually on the limbs as a very itchy macular, morbilliform, papular, often lichenoid, vesicular or squamous rash. They may appear at any time from two hours to three weeks after the last injection of the drug, on the average on the fifth day. They become very scaly and spread to involve the whole body; then they are known as exfoliative dermatitis. Mild cases may never become generalized and may clear up in a few days. More often they last three weeks or longer and are accompanied by constitutional symptoms, fever, chilliness, prostration, albuminuria and icterus. The mucous membranes may be involved, and there may be stomatitis, vaginitis, exfoliative conjunctivitis, diarrhea with epithelial cells and mucus in the stools, and temporary deafness from plugs of scales in the ear canals. This is a real sensitization, usually a group sensitization, so that any drug of the group will reexcite the skin.

Following this there is a great liability to skin infection. Boils, carbuncles, due both to vulnerability of the skin and to lowered general resistance, and sometimes agranulocytosis, acute bronchitis and polyneuritis may occur.

Purpura is seen less often during or after a course of the trivalent organic arsenicals but is a most important symptom. Its appearance should be immediately followed by a complete blood count. If the red or white blood cells decrease markedly in number or the percentage of polymorphonuclear neutrophils falls, the medication must be stopped at once. This condition, agranulocytosis, is often accompanied by a stomatitis or angina in which the fusospirillosis organisms are frequently found. It differs from the stomatitis due to mercury in being more acute, more red, drier and more exfoliative rather than moist, fetid and spongy, as is the mercurial form (Stokes, J. H.: Modern Clinical Syphilology, ed. 2, Philadelphia and London, W. B. Saunders Company, 1934, p. 470).

Reactions to bismuth arsphenamine sulfonate are of the same nature as the foregoing, modified by the action of bismuth, which is an adjuvant in the production of stomatitis and dermatitis.

Few skin reactions to mapharsen have been reported, but pruritus and exfoliative dermatitis have occurred.

Acetarsone (known also as stovarsol or spirocide) is gaining in popularity because of the ease of its administration, but its toxicity seems much greater than that of the arsphenamines, perhaps because of unwise administration. It may be responsible for the severest skin reaction, exfoliative dermatitis or agranulocytosis, which is apt to be accompanied by purpura. As much care is needed in its use as in the administration of any other organic arsenic compound.

Jaundice during a course of any of these drugs should be an indication for ceasing medication. It is usually of the catarrhal type, with a slightly swollen liver, its tender edge from 2 to 6 cm. below the edge of the ribs, bile pigment in the blood and the urine but absent from the stools, and a short febrile course. It occurs from a few days to several months after treatment. Acute yellow atrophy occurs most often in the pregnant.

Tryparsamide is the only one of the commonly used organic arsenicals that does not cause skin eruption. The following are recent articles:

Ayres, Samuel, Jr., and Anderson, N. P. Cutaneous Manifestations of Arsenic Poisoning, *Arch. Dermat. & Syph.* **30**: 33 (July) 1934.
Wile, U. J., and Sams, W. M.: Jaundice in Syphilis: Relation to Therapy, *Am. J. M. Sc.* **187**: 297 (March) 1934.

CARCINOMA OF VOCAL CORDS

To the Editor:—A white man, aged 60, complains of hoarseness of nine months' duration. Indirect laryngoscopy reveals paralysis of the left cord. Direct laryngoscopy shows fixation of the left cord and left side of the larynx, with a turgescence and slight redness of the sinus of Morgagni. A piece of the cord removed for biopsy confirmed the diagnosis of carcinoma of the larynx. There are no externally palpable glands. The general physical condition of the patient is good. What is the treatment of this case—surgery, x-rays or radium? What are the statistics with each form of treatment? M.D., New York.

ANSWER.—Carcinoma of the vocal cords may be classified from the standpoint of prognosis and operability somewhat as follows:

1. Those cases in which the cord is involved in its middle third and the cord remains freely movable.

2. Those cases in which the cord is usually fixed, the growth not extending much beyond the median line anteriorly and not encroaching on the posterior third of the cord to any extent.

3. Those cases in which the carcinoma involves the entire vocal cord from the arytenoid posteriorly to the median line or beyond anteriorly.

4. Cases belonging to groups 2 and 3 with the thyroid cartilage involved additionally or with encroachment on glands in the neck.

Group 1 is the earliest form and offers an excellent prognosis if treated by splitting the larynx (so-called thyrotomy or laryngofissure) and widely removing the affected cord. This is the treatment of choice in the opinion of the most competent laryngologists in this country; Chevalier Jackson and his school and Sir St. Clair Thomson in England and others obtain as high as an 80 per cent or greater incidence of lasting cures in this type of case.

In group 2 good results may be obtained by means of this procedure, but the number of lasting cures will be less and the number of recurrences will be greater.

In group 3 thyrotomy is no longer suitable. Such patients should have a total laryngectomy. The operative mortality and morbidity is much higher than in the operation spoken of and the prognosis for lasting cure is much less.

In group 4 the outlook becomes even worse, no matter what the treatment.

As to radium and x-rays, a few experts have reported that in group 1 they have obtained results almost as good as those to be had by operation. They say, furthermore, that the patient is spared an operative intervention and that, in the event the disease process is not controlled, operation may still be undertaken.

In group 2 it is a debatable question whether operation is better than radiation therapy. The majority of competent laryngologists in this country lean toward the idea of the operative type of intervention.

As concerns group 3, the tendency may be even more to lean toward the use of radium and the x-rays, although the whole field is still controversial. A cure by the use of radiation methods spares the patient the risks and the permanent disabilities that follow total removal of the larynx.

If operation should be performed in cases falling in group 4, a wide dissection of the glands of the neck would be required in addition. As a matter of fact, the tendency is not to rely in the more advanced cases solely on surgery or radiation therapy but on combinations of the two. The manner and form of these combinations depend on the individual operator and the means at his disposal.

As to statistics, in cases belonging to groups 2, 3 and 4 it is not possible to make accurate statements. They vary with the different operators, and in the field of radiation therapy the time is as yet not long enough to speak with final authority.

CLIMATE FOR BRONCHITIS AND BRONCHIECTASIS

To the Editor:—I am 33 years of age and have been bothered with a maxillary sinus infection for three or four years. I have been in western Texas for two and one-half years and, since coming out here, I have developed a chronic bronchitis, which has gradually become worse. Injection of iodized oil into my bronchial tubes recently showed considerable bronchiectasis. I had a submucous operation about a year ago and since that time haven't had any acute sinus attacks. A specialist reports my sinus in very good condition at the present time. The climate here is dry and the elevation is 2,900 feet. I am a company doctor for an oil firm and there is considerable sour gas in the camp, particularly on still nights. My cough and general condition have been, I am sure, greatly aggravated by this gas and by the dust we have in this part of the country. Other doctors have recommended but little in the way of treatment except a change of climate and use of autogenous vaccine. I tried the vaccine last year and have also tried a stock vaccine without any apparent benefit. I get a marked reaction to both vaccines. I would like your opinion on the kind of climate and the parts of the United States that are most favorable to a chronic bronchitis and bronchiectasis. I would appreciate any suggestions you could offer in the way of treatment. I am robust and healthy looking but have become very toxic and I am hardly able to do my work. A thorough check up has found nothing wrong with me except the bronchitis and bronchiectasis. Please omit name. M.D., Texas.

ANSWER.—It is impossible to suggest any locality that would be of certain benefit, and there is nothing except climate which really offers any probability of help. It would be advisable to take some time to investigate personally localities that are removed from the oil fields. The dust will be somewhat difficult to avoid in the Southwest, but in cases of bronchiectasis the disadvantage of occasional dusty days are slight when compared to the advantage of an equable, warm, dry climate. A dry air is not necessarily a desideratum, and some patients do well on the seashore. Some place on the Pacific coast or in Florida might be considered. Many patients do very well in Florida. In such a case the question of dust from molds must be considered.

BELL'S PALSY

To the Editor:—1. Of what value are the faradic and galvanic current tests in determining the prognosis of an ordinary case of Bell's palsy? 2. How long should one wait before advising operative intervention? 3. What, if any, are the indications for surgery in this condition? 4. What are the usual surgical procedures now employed? Please use initials only in answering. M.D., New Jersey.

To the Editor:—I have under my care a man, aged 54, who has a left sided Bell's palsy. At the appropriate time I plan to treat him with galvanic stimulation followed by faradic stimulation. What intensity of stimulation should I use in the early course of treatment? What duration of each early stimulation? What frequency of treatment? How long should the treatment continue? Please omit name. M.D., Illinois.

ANSWER.—1. In a case of Bell's palsy the faradic and galvanic currents are used in order to determine the presence of a reaction of degeneration in the involved facial nerve. For example, if the muscles and nerve of the affected side react to faradic and galvanic currents, one may say that the paralysis will disappear in about six weeks. If the muscles and nerve do not react to the faradic but react abruptly or slowly to the galvanic current, it may be said that the paralysis should disappear in from six to eight months. If however there is no reaction to either the faradic or the galvanic current, one may say that the facial nerve is so involved as to appear to be anatomically interrupted.

2. One should wait at least eighteen months and only after sufficient treatment to the involved side has been given in the form of galvanic current and massage.

3. The indications for surgery are usually severe ectropion or marked deformity of the mouth and cheek.

4. The usual surgical procedures are an anastomosis with the cut ends of the facial nerve, anastomosis of the facial and hypoglossal nerves, or anastomosis of the facial and spinal accessory nerves.

The length of time necessary for the treatment of Bell's palsy is dependent on the reaction of the involved facial muscles and nerves. From ten to fourteen days after the onset of a facial paralysis (Bell's) the involved muscles should be tested with the faradic and the galvanic current to determine

the presence of a reaction of degeneration. One must use only sufficient galvanic or faradic current to produce a contraction, and this should be continued for from eight to twelve minutes three times a week. The length of time of treatment depends on the response of the involved muscles to the galvanic and the faradic current. Light massage to the involved facial muscles should be carried out twice daily for five minute periods. Occasionally a contracture of the involved musculature will develop in a case of Bell's palsy. In these cases it is wise to dispense with all treatment for at least four weeks.

ANGINA PECTORIS

To the Editor:—I have under care a patient who is being treated for angina pectoris (a typical case). His symptoms are: (1) blood pressure 170 systolic, 95 diastolic; (2) heart slightly decompensated with occasional moist râles posteriorly; pulse 96 and regular; (3) attacks of angina of moderate severity, which occur following effort of any sort, emotional strain, or going out into the cold air. The pain radiates to the left shoulder and down the left arm. His treatment has been as follows: (1) sodium nitrite, (2) theocalcin, (3) theophylline, (4) tincture of iodine, (5) glyceryl trinitrate, (6) phenobarbital and (7) digitalis. Diet and general care have been advised. The foregoing treatment has been found insufficient. My purpose in writing is to inquire whether you have any information as to whether or not sodium chloride 5 per cent (sterile and distilled) intravenously has ever been used here. I have used the saline injections for endarteritis obliterans (Buerger's) disease with excellent results. Although not specific, the good results are thought to be due to (1) increased blood volume and (2) lessened blood viscosity (Beckman). Both these effects would be highly desirable in coronary disease. Do you think that sodium chloride is contraindicated here because of the arteriosclerosis? Please omit name if published.

M.D., New York.

ANSWER.—No record of the use of intravenous sodium chloride is available. Any possible beneficial effects would be transitory. Such a procedure would doubtless increase the blood volume for a period the length of which would be determined by the ability of the kidneys to get rid of the excess fluid or sodium chloride. It would probably do more harm than good, and possibly harm that could not be undone. The chances of any real or permanent advantage are negligible.

Of the medicines already tried, the theocalcine or theophylline, with or without the phenobarbital, used over long periods and in adequate dosage, appear to offer the best chances of benefit. The sodium nitrite may lower the blood pressure enough to decrease the coronary flow, and the glyceryl trinitrate should be used only to relieve attacks. Digitalis may have enough of a vasoconstrictive effect on the coronaries to offset any possible advantage and should be used very cautiously and critically. Unless there are specific indications, it is best not used at all.

TREATMENT OF SPASTIC PARALYSIS

To the Editor:—Miss D. P., aged 18, had infantile paralysis during infancy, her parents do not know at what age. They became aware of it when she attempted to walk. Now her right limbs are somewhat atrophic and spastic. Early in childhood she developed slight brief seizures. These consist of talk which does not make sense, a post-encephalitic gait and expression, and periods of excessive elation and depression. She also has major convulsive attacks, which are always preceded twenty-four hours or less by foul, putrid breath, and these major attacks are followed by several minor attacks. The foul breath clears in four or five days and with it the attacks, which are repeated at irregular intervals. She eats nothing for two days during the foul breath period. She has been treated as a metabolic and epileptic case. Since two blood sugar tests gave a reading of 72 and 75 mg. per hundred cubic centimeters and most of the attacks came several hours after meals and before breakfast, hyperinsulinism was suspected, but treatment under this theory was not effective. Do you consider the cause of the foul breath the cause of the epileptoid attacks? Attempts to aid digestion and elimination have yielded no adequate result. M.D., Illinois.

ANSWER.—The fact that the right limbs are spastic suggests that the lesion giving rise to the palsy was located in the brain and was not what is usually called infantile paralysis or, better, anterior poliomyelitis. The cerebral lesion would account for the encephalitic type of gait and expression and probably also for the occurrence of epileptic seizures. It is possible also that the cerebral damage may have resulted in disturbance of the vegetative functions of the body. In this sense the epilepsy and the digestive disturbances would be due to a common cause; this is a different view from that which would ascribe the seizures to the digestive upset. Therapy in such cases unfortunately is often of little value. A careful neurologic study is indicated for possible localizing signs. A ketogenic diet is worth trial and, should it prove of no advantage, one can do little more than advise general hygienic management with the administration of anticonvulsive remedies such as phenobarbital.

EMPYEMA

To the Editor:—March 24, I saw a boy 15 years of age and weighing 250 pounds (113 Kg.) who had been having a streptococcic sore throat for several weeks. A few days later he developed group IV pneumonia. He was hospitalized and several days later developed scarlet fever. Complications set in in the form of acute nephritis, dilatation of the heart, and myocarditis. Also an empyema of pneumococcic origin developed. The latter was aspirated and usually about 2,000 cc. of pus was obtained. Aspirations were continued for several weeks until it became very difficult to aspirate. May 5 a rib resection was done and the pus evacuated. It was found thinner than expected. A few days later irrigations of the chest cavity were begun with dilute solution of sodium hypochlorite. At the present time the tube is still in the chest cavity, with the end in an antiseptic solution in a bottle beside the bed. Little pus is obtained and that perhaps once a day or every other day. Roentgen examination of the chest shows no expansion of the lung. For several weeks after the rib resection the boy blew water through Woulfe bottles, but in the past few weeks he has not done so, complaining of being dizzy and having a severe headache whenever he blows. He has steadfastly refused to resume the exercise. What other exercise would you advise? His temperature has been normal for the past five or six days, but it takes spurts and may go up to 102. His pulse varies from 100 to 120 and his respirations from 20 to 24. What procedure would you advise? Would you remove the drainage tube? Kindly omit name and address if this is published.

M.D., New York.

ANSWER.—Since the lung has not expanded after a number of weeks of treatment, and since there are occasional bouts of fever, inadequate drainage of the empyema cavity or a bronchopleural fistula should be considered as possible factors responsible for the chronicity of the condition. If the drainage tube is not on the very floor of the empyema cavity (as determined by probing with a uterine sound or by roentgenograms made after the injection of iodized oil or 15 per cent sodium iodide solution into the cavity) or if the tube is farther forward than the posterior axillary line, the patient should be operated on again to establish completely efficient drainage. The caliber of the drainage tube should be sufficiently great to prevent its occlusion by secretions, and the inner end of the tube should be neither too far in the empyema cavity nor buried in the thoracic wall.

Since the patient has recently had evidence of myocarditis and cardiac dilatation, exercises such as those with Woulfe bottles should not be used because of the load that they place on the cardiocirculatory functional reserve.

If in spite of several months of efficient drainage the empyema cavity should fail to become obliterated, and if the patient's heart and kidneys are then in satisfactory condition, some effective combination of extrapleural and subsequent Schede thoracoplasty should be considered.

ASPERMIA

To the Editor:—A strong, vigorous man, aged 34, a farmer, married eight years, has normal sexual desire and normal erections, and indulges in the sexual act on an average of once each ten days but never has experienced orgasm or ejaculation during coitus. However, about once in every two or three months he experiences nocturnal pollution, with some degree of pleasurable sensation. He had no sex experience before marriage and consequently has never had any type of venereal disease. The personal and family histories are negative. The wife appears normal in every way. What pathologic condition can be back of this condition? What line of treatment would be suggested? What in your opinion is the prognosis? M.D., Nebraska.

ANSWER.—This is an interesting and rather rare condition termed aspermia (lack of expulsion of semen) and is to be distinguished from azoospermia (absence of spermatozoa in the semen). The orgasm or height of the voluptuous feeling is due to the squeezing of the seminal fluid through the ejaculatory ducts, and when this process is absent there can be no orgasm. This explains why during pollution there is some pleasurable feeling.

The condition is due to an obstruction either in the ejaculatory ducts themselves or to their openings into the prostatic urethra. It may also be due to an abnormal nervous mechanism of coitus, in which case the semen instead of progressing outward toward the meatus is regurgitated into the bladder. It is therefore important to examine the urine after coitus for seminal fluid (including spermatozoa). The faulty mechanism may be brought about by the patient training himself to retard ejaculation either while spooning or during coitus. The obstruction in or about the ejaculatory ducts may be the presence of strictures or bands in the neighborhood of the opening or even a slight congestion in the prostatic urethra at the ejaculatory openings sufficient to cause swelling that obstructs the openings.

The diagnosis of the obstructive cases can be made by a cystourethroscopic examination, observing the openings and, in rare

cases, catheterizing the ducts and if necessary injecting them and having a roentgenogram made. The nervous cases can often be diagnosed by finding spermatozoa or other seminal elements in the urine after coitus.

The treatment depends of course on accurate diagnosis. In cases in which there is merely congestion about the openings, gentle prostatic massage and instillations of weak silver nitrate solutions (from 1:3,000 to 1:500) in the prostatic urethra with the Bangs sound syringe will effect a cure. In cases of strictures of the ducts, gentle catheterizing of these through the urethroscope will effect a cure. In the case under consideration, the presence of pollutions at times would seem to indicate that there is no permanent organic obstruction and therefore the mild measures mentioned should effect a cure. The patient must however avoid anything that might bring about unnatural congestion in the prostatic urethra, such as prolonged spooning and coitus interruptus.

TINNITUS AURIUM

To the Editor:—A man, aged 32, apparently in good health, has been troubled by a continuous tinnitus aurium for the past two years. Physical examination, including that of the canal and ear-drum, was negative. There is no history of vertigo or syncope accompanying this condition. In the past year a diagnosis of an irritation at the orifice of the eustachian tube has been made by three competent eye, ear and nose specialists. Treatment by one of the specialists was to inflate the eustachian tube on alternate days for fifteen treatments; by another, to deflate the eustachian tube on alternate days for fifteen treatments; the third specialist had the patient on calcium for fifteen days, all without avail. Thinking that it might be a labyrinth involvement, I injected one-twentieth grain (0.003 Gm.) of pilocarpine hydrochloride daily for five doses with no results. Foreign protein therapy was also resorted to but with no results. I should like to ascertain the cause and treatment for such a condition.

M.D., Wisconsin.

ANSWER.—Tinnitus aurium may be caused by a great variety of lesions of the outer, middle or inner ear and occasionally by intracranial conditions independent of the ear, such as aneurysm. Treatment is effective only when the tinnitus is the result of a condition that can be directly relieved, such as impacted cerumen in the outer canal, traumatic perforation of the drum membrane, acute occlusion of the eustachian tube (in which case a single inflation will give immediate relief but a series of inflations may be necessary to maintain the patency of the tube), suppurative otitis media, toxic labyrinthitis the result of focal infection, neuritis of the eighth nerve from drugs (i. e., acetylsalicylic acid and quinine), acoustic neuroma, and syphilis of the inner ear.

Common causes for tinnitus that cannot be influenced by treatment are otosclerosis (in which the tinnitus may antedate the onset of the deafness by several years and there is often a family history of deafness), senile nerve deafness, degeneration of the organ of Corti the result of acute trauma from a sudden, loud noise in the ear such as an exploding firecracker, primary nerve deafness of unknown etiology, and secondary degeneration of the eighth nerve the result of chronic suppurative or nonsuppurative otitis media.

When the tinnitus is due to any one of the latter group, symptomatic treatment alone is of avail and consists of the administration of small doses of a sedative such as phenobarbital, from 0.016 to 0.03 Gm., three times a day.

Most cases of severe tinnitus tend to subside with the passage of time.

INDUSTRIAL DISEASE IN HOSIERY INDUSTRY

To the Editor:—What industrial diseases are common in the manufacture of hosiery? Can you furnish me a bibliography on this subject?

M.D., Pennsylvania.

ANSWER.—No industrial diseases are common in the manufacture of hosiery but a few occasionally arise, their nature depending in some measure on the type of stocking, whether silk, rayon, cotton or wool. Many of the conditions that have been encountered do not constitute characteristic occupational diseases but rather are the vague results of monotony, noise, vibration and lack of adequate plant sanitation. For example, suicide rates have in times past been considerably higher in this branch of industry than in industry in general, and apparently rates are higher for hosiery manufacture than for other branches of the textile industry. At once it is to be noted that present conditions are much superior to those of a generation ago. The literature that has developed around this pursuit scarcely applies to present-day conditions and to some extent may be ignored except for historical purposes. Noise may be the source of occupational deafness or of neuroses. Certain classes of machines lead to tenovitis and to related inflammatory disorders of the hands and forearms. The frequency of tuberculosis is believed to be high, which in times past has been linked with dusts. Perhaps a greater significance (than is attached to dust as the specific cause) may be given to general work environment, home conditions and low wages. Varicose veins have been attributed to long standing in machine tending in this industry, but it is here recognized that continuous standing is perhaps less injurious than continuous sitting, and that neither is desirable as a continuous practice. Anemia has been reported, but again this may be traced to no specific cause and is known to be common to many branches of the textile industry.

Weston in 1927 established that ocular fatigue was at that time prevalent in the hosiery industry. With the substitution of aniline dyes for mineral dyes the occurrence of lead or arsenic poisoning has largely disappeared. However, the dyes as now used, together with agents for lustering, delustering, sizing and bleaching, may give rise to skin diseases in those establishments carrying out such operations. The wearing of hosiery has led to injury caused by dyes (Schwartz, Louis: *Pub. Health Rep.* **49**:1176 [Oct. 5] 1934). It follows if the wearer of socks incurs damage that the maker of these same socks may be exposed to some extent. In "scrooping," finishing, waterproofing and lustering a variety of chemicals may be used, including sulfonated oils, special soaps, acetic, formic and tartaric acid, gums, gelatin, waxes, paraffins, zinc sulfate, barium sulfate, aluminum sulfate, borax and sulforicinol. Persons may become sensitized to various of these substances so that limited exposure may be followed by a dermatitis. Extensive information of the hazards of the textile industry, including the manufacture of hosiery, may be found in the International Labor Office publication "Occupation and Health" **2**:1031. There a bibliography may be found, which, however, chiefly centers about foreign languages.

TREATMENT OF SYPHILIS—TONSILLECTOMY

To the Editor:—A woman, aged 31, married, a housewife, had a miscarriage two years ago after having been married for one year. She was then discovered to have syphilis, which, from subsequent investigation, she probably had had for six or eight years (after her first marriage). She was given apparently vigorous antisyphilitic treatment following her miscarriage, mainly by intravenous arsenicals. Eight months ago, because of pelvic symptoms, she had an operation and, according to the patient, had one ovary, both tubes and the appendix removed. Continued antisyphilitic treatment followed the operation. Six months ago she had marked edema of the legs, hands and face; she was told that the urine contained albumin and that she had kidney trouble. She was placed on a diet and antisyphilitic treatments were stopped. Two weeks ago I saw her. At present she complains of hot flashes, palpitation and frequent sore throats. Examination discloses no edema of the face or extremities. The tonsils are large and infected. There is an apparent loss of weight. The urine is loaded with albumin; there are no casts, or sugar. The blood nonprotein nitrogen is 33⅓ mg. per hundred cubic centimeters. The blood Kahn reaction is 4 plus. The patient's general condition is fair; her appetite good. There are no reflex changes. Should she have antisyphilitic therapy; if so, what should be used and how? What should be the best method of treating the renal condition? Is it safe to do a tonsillectomy? Is it safe to coagulate the tonsils with a high frequency coagulator?

M.D., Massachusetts.

ANSWER.—If the miscarriage occurred in the early months of pregnancy, it most likely was not caused by syphilis. If it took place in the later months it may have been due to the syphilitic infection. No specific information is given as to why both tubes and one ovary were removed. Surely syphilis is not an indication for such an operation. The hot flashes and perspiration may be endocrinal in origin, based on the assumption that the remaining ovary for some reason or other has ceased to function. The albuminuria and edema of the hands, legs and face are due in all likelihood to an impairment in renal function. This in turn may have resulted from intensive antisyphilitic treatment or it may have resulted from a focus of infection such as the diseased tonsils, which the patient is presumed to have.

More antisyphilitic therapy should be given, but because of the renal disturbance great caution must be exercised. Small doses of the heavy metals should be used, but the urine should be carefully controlled for the amount of albumin present, for casts, and for the amount of nonprotein nitrogen it contains. The ocular fundi should also be examined from time to time. It is advisable to administer 1 cc. of bismuth salicylate intramuscularly once a week for four or six doses. This should be followed by four or six injections of 0.3 Gm. of neoarsphenamine given intramuscularly once a week. If any abnormal urinary signs appear this treatment should be stopped. Potassium iodide should be administered by mouth in addition to the use of the heavy metals. Mercuric benzoate may be added to the treatment.

It is a good plan to remove the tonsils in the hope that they may be the source of the kidney damage. Electric coagulation will most likely not give as satisfactory a result as

operative removal of the tonsils, which may readily be performed under local anesthesia.

There is no specific way of treating the renal condition other than by treating or removing the cause, which in this case may be syphilis, antisyphilitic treatment or tonsillitis.

HABITUAL ABORTION

To the Editor:—I should like to consult you regarding the management of an obstetric case. A woman, aged 34, is three and one-half months pregnant. She has never carried a child to viability but twice previously she has had a spontaneous miscarriage, once at six months in 1922 and once at five and a half months in 1929. So far as I can determine, the woman is perfectly healthy except for a nervous indigestion and irritable colon of years' standing. The gastro-intestinal symptoms are now and have been with her other pregnancies rather less marked than they are when she is not pregnant. The diagnosis of the gastro-intestinal condition has been made after careful clinical and roentgen studies by an internist of high standing. The urine and blood pressure are normal and always have been. The blood Wassermann reaction is negative. Pelvic measurements are normal. There is a slight endocervicitis but probably no more than a majority of women have. The fetus and placenta that miscarried in 1929 looked perfectly normal so far as I could see. I am giving the patient 1 cc. of antuitrin-S hypodermically every three days and restricting her activity. She feels quite well at present. However, I will say that in 1929 she felt perfectly well until the day she suddenly went into labor and miscarried. How would you handle this case from now on? Would you put her to bed after quickening? She would do almost anything to insure a living child. M.D., Iowa.

ANSWER.—The question of habitual abortion has been answered on numerous occasions in these columns, and little has been added to our knowledge in recent years. If syphilis, tuberculosis, focal infections, hematopathias and avitaminosis can be excluded, and if there is no malformation of the uterus, particularly infantilism and chronic infections, one has to proceed on general grounds, and the question of endocrines comes up. Of late a disturbance of the balance between estrogenic hormones and corpus luteum hormones has been considered as a frequent cause of habitual abortion, and progestin, which is the corpus luteum hormone, is being administered as a prophylactic. Lack of thyroid is likewise a cause and one might administer it if the basal metabolism rate is below normal or even just normal.

Rest in bed with the foot of the bed elevated from 6 to 8 inches should be insisted on for the full time of pregnancy. This is a hard sentence but deserves carrying out. The diet should of course be rich in vitamins, and calcium also is usually given.

SENSITIZATION TO RUBBER

To the Editor:—I am seeking information regarding a dermatitis produced by surgeons' gloves. For the last year and a half I have been the victim of a distressing condition of my hands and they became so inflamed in January that I was told to quit work for a while. February 1 I boarded a slow going ship and remained at sea for six months, during which time my hands completely healed. I returned and resumed work on August 1 and I carefully avoided all possible irritating substances as much as possible. I assisted in an appendix operation and in less than six hours my hands were red and the skin was swollen and there was marked itching and burning. They showed evidence of improving in a couple of days. From the first to the twelfth I assisted in four operations and on each occasion a similar reaction occurred. It was more violent on each following occasion. The reaction stops where the glove meets the cuff of the gown. The operator and I felt that it was from contact obtained from and in the operating room. We tested the skin on my forearm to a section of a sterile rubber glove, to the talcum with rubber from the glove over it, and also to the talcum alone. We left it in contact for one hour. The skin from four to six hours later was very irritated where rubber alone was used, mildly irritated where the talcum and rubber was used, and gave no reaction where the talcum alone was used. Any information you can pass to me about this condition will be much appreciated, as it is very distressing to me. M.D., Texas.

ANSWER.—From the history and the result of the patch tests, this is a case of sensitization to rubber. Such cases of sensitization are due to accelerators used in the process of the manufacturing of rubber. Among the accelerators used, hexamethylenetetramine (methenamine) is the one most irritating to the skin. An outbreak of dermatitis among the linesmen wearing rubber gloves in which tetramethyl thiuram disulfide was used as an accelerator was proved to have been due to hypersensitivity to this substance (Osborne, E. D., and Putnam, E. D.: Industrial Dermatoses, THE JOURNAL, Sept. 17, 1932, p. 972). Many of the accelerators or antioxidants may come out of the cured rubber in the form of bloom if the curing is not properly done or if too great an amount is mixed with the rubber. Such bloom may cause dermatitis.

Most of the accelerators and antioxidants used are harmless to normal skin, but hypersensitivity may occur toward any of them. (Skin Hazards in American Industry, Pub. Health Bull. 215, October 1934.)

Patch testing with rubber gloves from different manufacturers will probably reveal a type that can be used without irritation.

PSYCHIC FRIGIDITY

To the Editor:—A woman, aged 27, married two years, fails to reach a climax in her sexual relations. Occasionally she does attain this climax, but it seems to do her more harm than good, as it causes her to be the more resentful when she does not. Neither local nor general physical examination reveals any anatomic reason for her difficulty. Her marital relations are normally conducted and her husband does all in his power to help her obtain sexual gratification. There is no frigidity per se, no dyspareunia, no dislike for the sexual act. Her menstrual periods are normal and regular. She is in good health. The husband is 27 years of age and in good physical condition. (I have examined him also.) His part of their marital relations seems to be normal as to both manner and result. He is quite concerned about his wife's inability to obtain as much satisfaction as he does from their marital activities. The only method of birth control used is abstinence during the fertile period. The problem may not appear to be serious but nevertheless it has created in this woman a feeling of being cheated and this, in turn, is the source of an unpleasant undercurrent in an otherwise happy married life. In my instructions to this couple, along with a discussion of the anatomy and physiology of the female genitals, I made a suggestion that she read erotic literature on occasion. This worked like a charm for a while, but now that the reading is a duty it has lost its effectiveness. What course of treatment would you suggest here? Is there any endocrine treatment that might be of use? Please omit name and address. M.D., Illinois.

ANSWER.—The patient apparently has a frigidity of psychic origin. There is probably no physical basis for it, and the administration of organ extracts would not be effective. The patient needs a careful psychiatric investigation in order to determine the basis for her frigidity. It is only by understanding its cause that treatment can be instituted by appropriate psychotherapy.

DINITROPHENOL AND METABOLISM

To the Editor:—Kindly inform me whether the use of dinitrophenol can account for a continued high metabolic rate several months after the drug has been discontinued. RALPH FALK, M.D., Boise, Idaho.

ANSWER.—The peak of the effect of a single dose of dinitrophenol is reached in about six hours and there is complete return to the previous metabolic rate in from two to three days. When dinitrophenol has been given for prolonged periods there is no cumulation of the drug in the body, since the rates of excretion or detoxification soon get in equilibrium with the rate of intake. When the medication is stopped, the drug is practically all excreted within a few days, and the metabolism as promptly returns to its normal level. Therefore there is no basis for suspecting that a metabolism which remains elevated for several months after the use of dinitrophenol has been discontinued is due to the persistent action of the drug. It would seem desirable to make a thorough search for other causes of increased metabolism.

SUPERFECUNDATION—TWINS BY DIFFERENT FATHERS

To the Editor:—Please inform me if there is an authentic record of twins by different fathers. FRANK P. NORMAN, M.D., Columbus, Ga.

ANSWER.—In his book "Life in the Making," A. F. Guttmächer records two cases of superfecundation, which means the fertilization of two ova within a short period by spermatozoa from separate copulations. Most authorities agree that superfecundation is possible and also that it actually occurs. The two instances recorded concern women giving birth simultaneously to a white and a black child in which there seemed to have been adequate records of intercourse within comparatively short periods with black and white males.

EPHEDRINE AND THE LIVER—EFFECTS OF ALCOHOL ON INSULIN

To the Editor:—1. Does ephedrine in any way have a tendency to demobilize the glycogen from the liver, as is the case with epinephrine? 2. Does alcohol need to be considered in the dosage of insulin for patients with diabetes when the administration of insulin is necessary?

F. J. HIRSCHBOECK, M.D., Duluth, Minn.

ANSWER.—1. In very large doses, ephedrine occasionally produces hyperglycemia; but the glycogenolytic action is so weak that glycosuria does not occur.

2. No.

Medical Examinations and Licensure

COMING EXAMINATIONS

ALASKA: Juneau, March 3. Sec., Dr. W. W. Council, Juneau.

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOGY: *Written examination for Group B applicants* will be held in various cities throughout the country, March 14. *Oral examination for Group A and B applicants* will be held in Kansas City, Mo., May 11-12. Sec., Dr. C. Guy Lane, 416 Marlboro St., Boston.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: Written examination and review of case histories of Group B applicants will be held in various cities of the United States and Canada, March 28. Oral, clinical and pathological examination of all candidates will be held in Kansas City, Mo., May 11-12. *Applications for this examination must be received not later than April 1.* Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh (6).

AMERICAN BOARD OF OPHTHALMOLOGY: Kansas City, Mo., May 11 and New York, Sept. 26. *All applications and case reports must be filed sixty days before date of examination.* Asst. Sec., Dr. Thomas D. Allen, 122 S. Michigan Ave., Chicago.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY: Kansas City, Mo., May 11. *Applications should be filed with the secretary on or before April 1.* Sec., Dr. Fremont A. Chandler, 180 N. Michigan Ave., Chicago.

AMERICAN BOARD OF OTOLARYNGOLOGY: Kansas City, Mo., May 9. Sec., Dr. W. P. Wherry, 1500 Medical Arts Bldg., Omaha.

AMERICAN BOARD OF PEDIATRICS: Kansas City, Mo., May 9. Sec., Dr. C. A. Aldrich, 723 Elm St., Winnetka, Ill.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY: St. Louis, Mo., May 8-9. Sec., Dr. Walter Freeman, 1028 Connecticut Ave., Washington, D. C.

AMERICAN BOARD OF RADIOLOGY: Kansas City, Mo., May 8-10. Sec., Dr. B. R. Kirklin, Mayo Clinic, Rochester, Minn.

AMERICAN BOARD OF UROLOGY: Kansas City, Mo., May 8-10. Sec., Dr. Gilbert J. Thomas, 1009 Nicollet Ave., Minneapolis.

ARIZONA: *Basic Science.* Tucson, March 17. Sec., Dr. Robert L. Nugent, Science Hall, University of Arizona, Tucson. *Medical.* Phoenix, April 7-8. Sec., Dr. J. H. Patterson, 826 Security Bldg., Phoenix.

CALIFORNIA: Los Angeles, March 9-12. *Reciprocity.* Los Angeles, March 18. Sec., Dr. Charles B. Pinkham, 420 State Office Bldg., Sacramento.

COLORADO: Denver, April 7. Sec., Dr. Harvey W. Snyder, 422 State Office Bldg., Denver.

CONNECTICUT: *Regular.* Hartford, March 10-11. *Endorsement.* Hartford, March 24. Sec., Dr. Thomas P. Murdock, 147 W. Main St., Meriden. *Homeopathic.* Derby, March 10. Sec., Dr. J. H. Evans, 1488 Chapel St., New Haven.

IDAHO: Boise, April 7. Commissioner of Law Enforcement, Hon. Emmitt Pfost, 205 State House, Boise.

ILLINOIS: Chicago, April 7-9. Superintendent of Registration, Department of Registration and Education, Mr. Homer J. Byrd, Springfield.

IOWA: *Basic Science.* Des Moines, April 14. Sec., Prof. Edward A. Benbrook, Iowa State College, Ames.

MAINE: Portland, March 10-11. Sec., Board of Registration of Medicine, Dr. Adam P. Leighton, 192 State St., Portland.

MASSACHUSETTS: Boston, March 10-12. Sec., Board of Registration in Medicine, Dr. Stephen Rushmore, 413 State House, Boston.

MINNESOTA: *Basic Science.* Minneapolis, April 7-8. Sec., Dr. J. Charnley McKinley, 126 Millard Hall, University of Minnesota, Minneapolis. *Medical.* Minneapolis, April 21-23. Sec., Dr. Julian F. Du Bois, 350 St. Peter St., St. Paul.

MONTANA: Helena, April 7. Sec., Dr. S. A. Cooney, 7 W. 6th Ave., Helena.

NATIONAL BOARD OF MEDICAL EXAMINERS. *Parts I and II.* May 6-8, June 22-24, and Sept. 14-16. Ex. Sec., Mr. Everett S. Elwood, 225 S. 15th St., Philadelphia.

NEW HAMPSHIRE: Concord, March 12-13. Sec., Board of Registration in Medicine, Dr. Charles Duncan, State House, Concord.

NEW MEXICO: Santa Fe, April 13-14. Sec., Dr. E. LeGrand Ward, Santa Fe.

OREGON: *Basic Science.* Portland, March 21. Sec., Mr. Charles D. Byrne, University of Oregon, Eugene.

PUERTO RICO: San Juan, March 3. Sec., Dr. O. Costa Mandry, Box 536, San Juan.

WEST VIRGINIA: Charleston, March 16. State Health Commissioner, Dr. Arthur E. McClue, Charleston.

WISCONSIN: *Basic Science.* Madison, April 4. Sec., Prof. Robert N. Bauer, 3414 W. Wisconsin Ave., Milwaukee.

Indiana Reciprocity Report

Dr. William R. Davidson, secretary, Indiana State Board of Medical Registration and Examination, reports 44 physicians licensed by reciprocity during 1935. The following schools were represented.

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Arkansas School of Medicine		(1933, 2)	Arkansas
College of Medical Evangelists		(1931)	Maine
University of Colorado School of Medicine		(1927)	Colorado
Yale University School of Medicine		(1927)	Ohio
Emory University School of Medicine		(1930)	Georgia
Bennett Medical College, Chicago		(1916)	Arkansas
Loyola University School of Medicine		(1925), (1930)	Illinois
Northwestern University Medical School		(1928) Ohio, (1934)	California
Rush Medical College		(1922), (1929), (1930), (1933)	Illinois
University of Illinois College of Medicine		(1932)	Illinois
State University of Iowa College of Medicine		(1927), (1930)	Iowa
Kansas Medical College, Kansas		(1905)	Colorado
Univ. of Louisville School of Med.		(1928, 2), (1931), (1933, 3)	Kentucky
Johns Hopkins University School of Medicine		(1927)	Tennessee
University of Michigan Medical School		(1918), (1931)	Michigan
St. Louis University School of Medicine		(1932)	Missouri
Washington University School of Medicine		(1932), (1933)	Missouri
Creighton University School of Medicine		(1933)	Utah
Ohio State University College of Medicine		(1920), (1932)	Ohio
University of Cincinnati College of Medicine		(1934, 2)	Ohio
Western Reserve University School of Medicine		(1929)	Ohio
University of Oklahoma School of Medicine		(1930)	Oklahoma
Hahnemann Medical College and Hosp. of Philadelphia		(1933)	Ohio
Jefferson Medical College of Philadelphia		(1922)	Penna.
Meharry Medical College		(1934)	Tennessee
University of Virginia Department of Medicine		(1930)	Virginia
Marquette University School of Medicine		(1932)	Wisconsin
University of Manitoba Faculty of Medicine		(1930)	Illinois

Maine November Examination

Dr. Adam P. Leighton, secretary, Maine Board of Registration of Medicine, reports the written examination held in Portland, Nov. 12-13, 1935. The examination covered 10 subjects and included 100 questions. An average of 75 per cent was required to pass. Thirteen candidates were examined, 12 of whom passed and 1 failed. Two physicians were licensed by reciprocity and 5 physicians were licensed by endorsement after an oral examination. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
Georgetown University School of Medicine		(1935)	86.3
Boston University School of Medicine		(1935)	83.2
Harvard University Medical School		(1901)	75.6
Tufts College Medical School		(1933) 84.9, (1934) (1935) 84.3, 84.6, 86.2	83.7,
Columbia Univ. College of Physicians and Surgeons		(1935)	80.7
Hahnemann Medical College and Hosp. of Philadelphia		(1935)	81.9
University of Wisconsin Medical School		(1934)	88.4
Queen's University Faculty of Medicine		(1934)	82.6

School	FAILED	Year Grad.	Per Cent
Regia Università degli Studi di Roma. Facoltà di Medicina e Chirurgia		(1931)*	66.2

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Dartmouth Medical School		(1897)	New Hamp.
University of Vermont College of Medicine		(1920)	Vermont

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
College of Medical Evangelists		(1935)	N. B. M. Ex.
Boston University School of Medicine		(1930)	N. B. M. Ex.
Harvard University Medical School		(1925), (1931), (1932)	N. B. M. Ex.

* Verification of graduation in process.

Virginia December Report

Dr. J. W. Preston, secretary, Virginia State Board of Medical Examiners, reports the written examination held in Richmond, Dec. 11-13, 1935. The examination covered 8 subjects and included 80 questions. An average of 75 per cent was required to pass. Eight candidates were examined, 7 of whom passed and 1 failed. Fourteen physicians were licensed by reciprocity and 7 physicians were licensed by endorsement. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
Howard University College of Medicine		(1934)	81
School of Med. of the Div. of the Biological Sciences		(1935)	88
Univ. of Maryland School of Medicine and College of Physicians and Surgeons		(1934)	87
Tufts College Medical School		(1935)	85
Duke University School of Medicine		(1934)	82
Medical College of Virginia		(1935)	82
University of Virginia Department of Medicine		(1933)	77

School	FAILED	Year Grad.	Per Cent
Leonard Medical School, North Carolina		(1910)	41

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Howard University College of Medicine		(1934)	Tennessee
Chicago College of Medicine and Surgery		(1916)	W. Virginia
University of Louisville Medical Department		(1911)	Kentucky
University of Louisville School of Medicine		(1932)	Kentucky
Tulane University of Louisiana School of Medicine		(1932)	Louisiana
University of Maryland School of Medicine and College of Physicians and Surgeons		(1917) W. Virginia, (1934)	Maryland
University of Pennsylvania School of Medicine		(1917)	Penna.
Meharry Medical College		(1934, 2)	Tennessee
University of Tennessee College of Medicine		(1933)	Tennessee
Vanderbilt University School of Medicine		(1932)	Tennessee
University of Virginia Department of Medicine		(1930) W. Virginia, (1933)	Maryland

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
University of Colorado School of Medicine		(1934)	N. B. M. Ex.
Johns Hopkins University School of Medicine		(1933)	N. B. M. Ex.
Univ. of Maryland School of Medicine and College of Physicians and Surgeons		(1933)	N. B. M. Ex.
University of Minnesota Medical School		(1931)	U. S. Navy
Columbia Univ. College of Physicians and Surgeons		(1930)	N. B. M. Ex.
Duke University School of Medicine		(1933, 2)	N. B. M. Ex.

Book Notices

Diseases of the Liver, Gall Bladder, Ducts and Pancreas: Their Diagnosis and Treatment. By Samuel Weiss, M.D., F.A.C.P., Clinical Professor of Gastroenterology, N. Y. Polyclinic Medical School and Hospital. Chapter on Surgery by J. Prescott Grant, M.D., F.A.C.S., M.R.C.S., Professor of Surgery, N. Y. Polyclinic Medical School and Hospital. Chapter on Roentgenology by A. Judson Quimby, M.D., F.A.C.R., Professor of Roentgenology, N. Y. Polyclinic Medical School and Hospital. Cloth. Price, $10. Pp. 1,099, with 364 illustrations. New York: Paul B. Hoeber, Inc., 1935.

This volume consists of 931 pages of reading material and nearly 100 pages of references, of which less than one third are quoted in the text. The latter simply contribute to the bulkiness of the book that is already big. What one looks for in a book by a single author is not simply an accumulation of everything ever mentioned by various writers but a systematic, analytic and evaluated statement of facts in which two things should stand out: a clear cut clinical picture of the disease under discussion from which one can benefit by the author's experience and an evaluation of the work of others in such a way that the reader can obtain a definite opinion of what is important and what is not. The reviewer, who spent considerable time and effort in examining this book, was desirous of being fair and sought information. The author undoubtedly spent an enormous amount of time and energy in getting out this large compilation, which is encyclopedic in character, but he has failed to inject that personal touch which causes a book to stand out from the multitude. Quotations from as yet unaccepted work are given undue prominence. The section on clinical and experimental physiology is quite large but frequently fails to state prevailing opinions. Some extravagent therapeutic claims for the pancreatic hormones are made here. Considerable space is devoted to a discussion of the tests of liver function, but the reader is at loss to know which ones are preferable. It would be interesting to know how hippuric acid finds its way in duodenal contents obtained by biliary drainage. It is not clear why furred tongue, heartburn and hematemesis with various cardiac, renal, neurologic and dermatologic manifestations are referred to as functional. It is generally accepted that the tests for liver dysfunction have their real value in fairly advanced hepatic disease. Still the author states that the newer tests of liver function are of value in the diagnosis of early mild hepatic insufficiency. It should be emphasized that in well developed acute yellow atrophy sugar is made available far better by venoclysis or hypodermoclysis than by proctoclysis. The Hanot-Gilbert and the Hanot biliary cirrhosis are described as different diseases but are not separated in the charts of differential diagnosis. The chapters on cholecystitis and cholelithiasis are probably the best but still are lacking in what has already been mentioned. The chapter on the medical treatment of gallstones is a veritable hodgepodge. The author gives space to listing a multitude of remedies and measures for the condition, as though medically curable. High enemas and low enemas, calomel and intestinal antiferments seem to have their indications. Cholecystitis, it appears, may be prevented by biliary disinfectants, such as methenamine, salicylates and ammonium chloride in 7½ grain (0.5 Gm.) doses. Hyperchlorhydria must be avoided, it is said, because it leads to gallstone formation. Saline laxatives, especially sodium phosphate, bismuth subnitrate and sodium bicarbonate before meals and a proper diet in the presence of inflammatory catarrhal conditions of the duodenum and stomach, it is intimated, will prevent the infection of the biliary tract and the formation of gallstones. The author quotes the ridiculous report of the cure of carcinoma of the gallbladder and the passage of fifty-two calculi by the use of olive oil. Solution of posterior pituitary, chloretics, cholagogues, salines and various herbs in shotgun prescriptions are mentioned as remedies for gallstones. Biliary drainage finds an ardent supporter in the treatment of cirrhosis, dermatoses, arthritis of biliary origin and cystic duct obstruction on a catharrhal basis. The chapters on pancreatic disease are not as complete as the rest of the book. Those on surgical treatment by J. Prescott Grant and on roentgenology by Judson Quimby are satisfactory. There are many excellent illustrations, charts and diagrams.

Les astéréognosies: Pathologie du toucher. Clinique, physiologie, topographie. Par J. P. L. Delay. Préface du Pr Guillain. Paper. Price, 65 francs. Pp. 524, with 19 illustrations. Paris: Masson & Cie, 1935.

This book discusses in detail the pathology of loss of ability to appreciate objects or things by means of feeling or touching (astereognosis). All the work was done in the neurologic clinic of Salpêtrière under the supervision of George Guillain and in the laboratory of physiology of sensations in the College of France under the supervision of H. Pieron. Delay includes three syndromes in his study of astereognosis. They are (1) l'amorphognosie, (2) l'ahylognosie and (3) l'asymbolic tactile. L'amorphognosie is a term given to that condition in which there is an inability to appreciate the form, length and spatial qualities of an object. L'ahylognosie refers to inability to appreciate the density, thermic conductivity, rugosity and molecular qualities of an object. The asymbolic tactile is the inability to appreciate the species or use of an object. The book is divided into six parts. The first part is further subdivided into three chapters. They are definition and classification of astereognosis, the two classic conceptions of astereognosis and the analysis of touch. The second part is subdivided into definition of elementary sensations, method of examination of elementary sensations and the anesthesias and sensory abnormalities. The third part consists of three chapters on the ahylognosias and the difficulties of detailed analysis. The fourth part discusses in three chapters the amorphognosias and the difficulties of spatial analysis. The fifth part is subdivided into three chapters and discusses the tactile asymobolia and semantic agnosias. The sixth part is made up of nine chapters and discusses special studies of astereognosis in detail. This book is highly recommended for use to all neuropsychiatrists and students interested in cortical and spinal as well as peripheral abnormalities of sensation related to stereognostic function. There is a detailed bibliography consisting of thirty-nine printed pages.

The Medical Man and the Witch During the Renaissance. By Gregory Zilboorg, M.D. The Hideyo Noguchi Lectures. Publications of the Institute of the History of Medicine, The Johns Hopkins University, Third Series, Volume II. Cloth. Price, $2.50. Pp. 215, with illustrations. Baltimore: Johns Hopkins Press, 1935.

The author is a student of Bekhterev, graduate of the psychoneurologic institute of Petrograd, psychiatrist at Bloomingdale Hospital, and a specialist in the field of the history of medical psychology.

The psychiatrist is of necessity deeply concerned with the cultural background and genetic origins of his patient. The general tendency among this class of medical specialists to be more interested in the historical bases of medicine than are physicians devoted to other specialties thus seems to have a psychologic origin. Psychiatry, more than any other field of development in modern medicine, must understand the mental atmosphere environing the patient; but the knowledge of today cannot be utilized as a guide to the problems of the mentally sick as they confronted the physician of earlier days, especially of days when astrology, magic and witchcraft polluted the social atmosphere. Dr. Zilboorg's investigations enable us to comprehend more fully the bedevilment which afflicted states and communities, the bases for the mass psychoses, the legally authorized tortures and cruel burnings of deranged women and frightened children. Most of all, they clearly set forth the significance of the writings of Weyer, who, as physician, sought by direct observation and intensive study of mental cases, which were sometimes brought into his own home for more intimate observation, to develop an objective point of view of mental aberrancy and to establish the obligation of the physician to care for such cases and the rights of the accused person to have medical care rather than the judicial consignment to the torture chamber and stake. The work of Weyer is the more remarkable, as it flew directly in the face of custom and was without benefit of a Kraepelin or a Freud.

The three chapters deal respectively with (1) the physiologic and psychologic aspects of the Malleus Maleficarum (The Witch's Hammer), (2) medicine and the witch in the sixteenth century, and (3), Johann Weyer, the founder of modern psychiatry.

The Witch's Hammer (about 1487-1489) was the work of two Dominican monks, Johann Sprenger and Heinrich Kraemer,

appointed by Pope Innocent VIII in 1484 to uncover, apprehend and try witches and wizards in the Rhine provinces and in northern Germany. This volume became the textbook of the Inquisition. It was printed ten times before 1669 and ran through ten editions in the following century. This book, a heavy volume in quarto, has been characterized as "so insane, so raw and cruel, and it leads to such terrible conclusions, that never before or since did such a unified combination of horrible characteristics flow from a human pen."

The second part presents a series of "case histories" with a view of showing how little, or much, the physician played a part in the tragedies typical of these times. This is truly an exceedingly difficult task, largely obscured by extraneous affairs and best illustrated in only a relatively few instances in medical literature of the day.

The concluding part analyzes the writings of Johann Weyer (1515-1588), a student of Cornelius Agrippa in Bonn, and thus in the tradition of Paracelsus and Erasmus, with a degree in medicine from Paris, city physician at Arnheim, and personal physician throughout his later life to the enlightened and liberal Duke Wilhelm of Jülich-Cleve-Berg. Weyer looked on the demoniacal world about him as an enormous clinic teeming with sick people; he made clinical analyses of cases, ransacked the literature of the field, called on the encowled ignorant monks to leave the management of witches and the bewitched to physicians, and to reduce expenses by putting logs and faggots to a better use than in attempting to destroy errors by destroying human beings. He protested that witchcraft was a delusion, that witches could do no harm to men or animals, and that "no one can more correctly judge these things than we physicians, whose ears and hearts are being constantly tortured by this superstition."

Weyer's scientific ability is also demonstrated in his lucid account of what appears to have been trichinosis, of English sweating sickness, of syphilis, of "pestilencial cough" (influenzal pneumonia), of erysipelas and of scurvy. With psychologic perspicacity he unraveled the clinical history of these bewitched persons in whose bodies devils had deposited various and odd foreign bodies. He investigated and applied surgical aid to atresias of the new-born and to the relief of suppressed menstruation. He denounced superstition as heathenism and scathingly attacked quackery and nonmedical methods of magic and exorcism, exposed malingering, and, although his writings show clearly that he had not arrived at a disbelief in the devil, he devoted his life to banishing him and all his works from their enormous, appalling and malevolent action in human affairs.

An indirect consequence of the recognition of the psychiatric factor in disease, initiated by Weyer, has been that the medical profession has displaced the devil (perhaps in some individual instances replaced him) and has thereby progressively risen to ever higher levels of opportunity, power and responsibility in human affairs.

The Epidemiology of Pneumonia on the Witwatersrand Goldfields and the Prevention of Pneumonia and Other Allied Acute Respiratory Diseases in Native Labourers in South Africa by Means of Vaccine. By Sir Spencer Lister, LL.D., M.R.C.S., L.R.C.P., Director of the Institute, and David Ordman, B.A., M.B., Ch.B., Department of Bacteriology, The South African Institute for Medical Research. With the following relative papers: (1) Prophylactic Inoculation Against Pneumonia and Other Acute Respiratory Diseases with Vaccine on the Randfontein Estates Mine. By P. A. Peall, M.B., M.R.C.S., L.R.C.P., Senior Medical Officer, Randfontein Estates Gold Mining Co., Ltd. (2) Pneumonia in the Native Mine Labourers of the Northern Rhodesia Copperfields with an Account of an Experiment in Pneumonia Prophylaxis by Means of a Vaccine on the Roan Antelope Mine. By D. Ordman, B.A., M.B., Ch.B., Department of Bacteriology, The South African Institute for Medical Research. Publications of the South African Institute for Medical Research, No. XXXVII (Vol. VII). Paper. Pp. 124, with 21 illustrations. Johannesburg: South African Institute for Medical Research, 1935.

A twenty-four year study is reported on the prophylaxis of pneumonia among miners in South Africa with autogenous vaccine. The population at any one time totaled about 200,000 natives from various sections of South Africa, exclusive (after 1918) of those from north of latitude 22° S. as a result of their high degree of susceptibility to respiratory infections. The men worked through periods of from six months to a year, and no follow-up study of their health after leaving the mines is reported. Studies were made of housing and sanitary conditions in the mines and in the barracks, and also of the diet of the miners. Any changes made apparently had little effect on respiratory infections. No information is given as to the age of the individuals studied.

The investigation is divided into three periods: first, 1911-1913, a review of Wright's work with mixed pneumococcus vaccine; second, 1913-1925, in which the vaccine used contained for the most part freshly isolated pneumococci of the groups as classified by Lister; and third, 1926-1934, in which the vaccine was modified because the respiratory infection was observed to change from a pneumococcic pneumonia to a mixed infection due largely to the streptococcus, the staphylococcus and Friedländer's bacillus.

A lower incidence and mortality rate among the inoculated men as compared to the noninoculated in the second period was explained by the use of three injections of mixed types of pneumococcus vaccine. But in 1926, even though this vaccine was used, a rise in incidence and mortality rate led to a study of the causative agent. On discovery of a change in the bacterial flora to the streptococcus, the staphylococcus and Friedländer's bacillus instead of various types of pneumococci, a fresh "autogenous" vaccine was made from these strains along with type B pneumococcus (American type II). This vaccine was injected in men in some of the so-called bad mines, and men in other "bad mines" were considered controls. During 1930-1933 a reduction of more than 50 per cent occurred in both incidence and mortality among the inoculated group as compared to the noninoculated. Although injections were made in small numbers of men, the authors stated that this reduction was significant as compared to the incidence and mortality in the entire mine area.

The study is of special interest because of the observation of the change in bacterial flora from a pneumococcus prevalence to a pneumococcus absence in respiratory infections. Following injection of autogenous pneumococcus vaccine there was a reduction in the incidence and mortality of pneumococcic lobar pneumonia, and following injection of autogenous vaccine containing the prevalent organisms other than pneumococci there was also a decrease in the incidence and mortality rate due to respiratory diseases. The authors assume that a virus is the etiologic agent of the respiratory diseases and that the organisms isolated were possibly secondary invaders. No proof of this supposition is given.

Woman: An Historical Gynæcological and Anthropological Compendium. By Hermann Heinrich Ploss, Max Bartels and Paul Bartels. Edited by Eric John Dingwall. In three volumes. Cloth. Price, £8 8s. per set. Pp. 655; 822; 543, with 1,009 illustrations. London: William Heinemann, Ltd., 1935.

The first edition of Ploss and Bartels' notable work appeared in Germany in 1885, the second was published in 1887, and the ninth edition appeared in 1908. In 1927 an eleventh edition was issued in which much supplementary material and photographs were added. Thus the book becomes a well established source book of information on the anthropology, gynecology and ethnology of women.

In the present edition E. J. Dingwall has slightly modified the text in the interest of new evidence and has introduced new material. More space is devoted to anatomy, to crime and to the social sciences than was given in any of the German editions. In preparing this text the author has had the assistance of many competent British scholars.

The book is developed now in three volumes. The first volume discusses the anthropology, psychology and anatomy of the female as they are distinguished from the male. The second part of the first volume concerns the social status and position of woman in civilization from the earliest times, and then the girl from birth to the time of puberty. Here are given the superstitutions and religious beliefs associated with menstruation.

The second volume deals primarily with the process of birth, beginning with the sex relationships, discussing love, courtship and marriage, sterility and fertility, pregnancy, the hygiene of pregnancy, abortion, processes of childbirth and superstitutions. There are excellent chapters on the history of obstetrics, its practice among various foreign peoples, and finally the care of the afterbirth.

The final volume continues with discussions of labor and the puerperium, cesarean section and lactation. Here are special sections on the beliefs associated with the development and care of the breasts. Other chapters concern the old maid, woman as a saint, the widow, the menopause, old age, and death.

The book is handsomely printed on fine enameled stock. It is profusely illustrated with thousands of pictures (some in colors) and there is a tremendous bibliography.

Stop-Light. By William Louis Poteat, Professor of Biology, Wake Forest College, Wake Forest, N. C. Cloth. Price, 75 cents. Pp. 91. Nashville, Broadman Press, 1935.

This is not temperance education, though it pays lip service to the principle of education as opposed to propaganda. It is propaganda for national prohibition, not education in the effect of alcohol on the health of the user. "I seek," says the author, "to arrest attention and direct it upon the elementary and undisputed facts of beverage alcohol as they are presented in the cold science of the time." In another place, "we seek the fact, the truth . . . no fancy, no theory, no extravagance of fanaticism, no interested perversion of the propagandist, will be allowed a hearing." Having thus vehemently castigated the propagandist, the author proceeds to write four chapters of pure propaganda, which would have been better and more worthy of respect as propaganda if it had been presented frankly for what it is, since obviously the author, or any one else, has a right to crusade for prohibition by legislative fiat if he has not learned that such a procedure is psychologically unsound. The reviewer holds no brief for or against prohibition, as long as the rights of the physician to decide as to the merits of alcohol as a therapeutic agent are not curtailed. He does hold, however, that propaganda is not the same as education. The author's chapter on the history of alcohol contains a few citations from ancient literature and much material laudatory of more or less modern organizations devoted to prohibition. The chapter on physiology, besides being incomplete as compared with other recent popular works on alcohol, is definitely colored to emphasize the views of the writer and to minimize opposing opinions. This book is a good choice to recommend for the reading of those whose minds are already made up in favor of national prohibition by law, and who want the comfort of confirmation. The skeptic or the opponent of the author's views will hardly be convinced by the evidence presented or the manner of its presentation. The seeker for facts "in the cold science of the time" will find better choices in other recent popular books on alcohol.

Report of the Sixth Australian Cancer Conference Held at Canberra, 13th-17th May, 1935. Commonwealth of Australia. Paper. Pp. 54, with 8 illustrations. Canberra: L. F. Johnston, 1935.

The sixth Australian cancer conference was convened by the director general of health, Commonwealth Department of Health, and met in Canberra from Monday to Friday, May 13-17, 1935. The conference, after a full morning's discussion of the many aspects, passed resolutions adopting Dr. Holmes's review and recommending the formation of a national organization along the lines indicated in that review and the appointment of liaison officers in the commonwealth and states. It was decided that the next meeting of the Australian cancer conference should be held in Melbourne but that every second year the conference should be held in Canberra. The arrangements for the next conference was left in the hands of the commonwealth department of health in consultation with the Royal Australian College of Surgeons, and an agenda committee was selected. The conference also passed a resolution supporting the proposal for the early establishment of a Medical Research Council.

In order to pave the way for more complete understanding and effective cooperation on the part of general practitioners in the developments for the control of cancer, the conference recommended that the universities should introduce into the medical curriculum some instruction in radiotherapeusis. The subject of roentgen therapy received a large amount of attention of the conference. The question of physical investigation into the problems of the radiotherapists and of assistance to radiotherapists in overcoming their difficulties in relation to the determination of the quality of x-rays used in treatment, the dosage administered at varying depths in the tissues, and other aspects, has received much attention during the year. There follows a review of research carried out by the Cancer Research Committee of the University of Sydney during 1934. Dr. Sande's report to the federal government of Australia is presented in three parts: publicity, treatment and research. After an excellent review of the cancer problem as observed in various American and European centers, he concludes with the following recommendations:

. . . To secure improved cooperation between the states I suggest that the government should give serious consideration to the establishment of an Australian cancer commission as an independent body with statutory endowment to deal with the three main aspects of cancer work, firstly cancer publicity, secondly cancer treatment and thirdly cancer research. One of the commissioners should be a publicist, another a therapist and the third a scientist. These men should be in the active period of life with vision, driving power and experience of the different aspects of the work. They might be between 35 and 45 years of age and, if they prove themselves, might be expected to hold office for ten or fifteen years. They may need consultant or departmental assistance, but I think they should be independent of any existing organization and responsibile only to the minister or to parliament.

The report is comprehensive and well presented. It should be read by all those who are interested in problems of organization as related to cancer control.

Die Haut- und Geschlechtskrankheiten: Eine zusammenfassende Darstellung für die Praxis. Herausgegeben von Prof. Dr. Leopold Arzt und Prof. Dr. Karl Zieler. Lieferung 25, Band V. Verhütung und Bekämpfung der Geschlechtskrankheiten. Von Prof. Dr. Julius K. Mayer. Nichtvenerische Krankheiten der Geschlechtsorgane: Balanitis, Phimose und Paraphimose. Von Prof. Dr. W. Frei. Die nichtgonorrhoische Harnröhrenentzündung. Von Prof. Dr. Gustav Scherber. Induratio penis plastica. Von Prof. Dr. Gustav Scherber. Ulcus vulvae acutum (Ulcus pseudotuberculosum, Scheidenbazillengeschwüre). Von Prof. Dr. Gustav Scherber. Akute Gangrän der äusseren Geschlechtsorgane. Von Prof. Dr. Gustav Scherber. Titel und Inhaltsverzeichnis zu Band V. Paper. Price, 9.40 marks. Pp. 525-690, with 35 illustrations. Berlin & Vienna: Urban & Schwarzenberg, 1935.

Die Haut- und Geschlechtskrankheiten: Eine zusammenfassende Darstellung für die Praxis. Herausgegeben von Prof. Dr. Leopold Arzt und Prof. Dr. Karl Zieler. Lieferung 26/27, Band II. Die bösartigen Geschwülste der Haut. Von Prof. Dr. Leo Kumer und Prof. Dr. Franz Josef Lang. Gutartige Neubildungen der Haut. Von. Prof. Dr. Leopold Arzt und Prof. Dr. Herbert Fuhs. Fragliche Neubildungen und nahestehende Krankheiten. Von Prof. Dr. Alfred Stühmer. Titel und Inhaltsverzeichnis zu Band II. Gesamt-Sachverzeichnis. Paper. Price, 28.50 marks. Pp. 829-1192, with 297 illustrations. Berlin & Vienna: Urban & Schwarzenberg, 1935.

The final instalments (25, 26 and 27) of this comprehensive work deserve additional laudatory comment. In the section on nonvenereal diseases of the generative organs is a valuable contribution by Professor Frei on the different forms of balanitis and another one by Professor Schreiber on ulcus vulvae acutum. The chapter on malignant tumors by Kumer and Lang occupies 145 pages and that by Arzt and Fuhs on benign tumors of the skin 190 pages. The colored and black and white illustrations of clinical cases are unusually numerous and well selected and there are many excellent reproductions of photomicrographs. The completion of this masterly work together with a comprehensive index should be a source of gratification to the editors and publishers alike and will be welcomed by students of dermatology.

The Parathyroids in Health and in Disease. By David H. Shelling, B.Sc., M.D. Cloth. Price, $6. Pp. 335, with 26 illustrations. St. Louis: C. V. Mosby Company, 1935.

This is an excellent discussion of a subject of far wider scope than the title indicates. Each chapter carries its own bibliography of well selected references, not necessarily complete but comprehensive and representative. One wonders just why the pathology of the parathyroids was discussed before the physiology. The contents of the first four chapters, embracing the history, the anatomy, the pathology and the physiology of the parathyroids, constitute conservative discussions with, however, little that is not found in other recent reviews, except that the author has enlivened the material sufficiently to bring it out of the class of a dry review. The discussion of the parathyroid hormone is brief, concise, and well supported by experimental evidence; considerable space is devoted to bioassay. In the next two chapters there is a wealth of material on the clinical physiology, particularly that relating to bony tissues and to the reticulo-endothelial system, much of which has never before appeared in any review. There is one short chapter on

the relations of the parathyroids to other endocrine glands, all based on well authenticated experimental results; there is a short chapter on the relation of vitamin D to parathyroid function, devoted mainly to an alinement of evidence for and against the theory that the vitamin acts through the parathyroids. This is the high light of the book, since a logical reconciliation of the facts is brought about in a masterful manner and the reader closes the chapter with a feeling of satisfaction. The final chapter is devoted to a timely discussion of the therapeutics of the parathyroid hormone, from which the reader obtains a clear notion of the contraindications. Some of the illustrative charts are too complex for the general reader to interpret. The anatomic and microscopic illustrations are apparently original or reproductions of originals in previously published work of the author or his associates. Despite the many points of excellence, the price seems rather out of proportion when the book is compared with monographs of similar scope on other subjects. Nevertheless the timeliness of subject matter and the general excellence of presentation should recommend it both to the physician and to the investigator.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Expert Testimony: Right of Attorney to Obligate Client to Pay Fee of Expert Witness.—The defendant in this case had been injured in an accident. The physician-plaintiff, a roentgenologist, interpreted certain roentgenograms for her attending physician and was paid for doing so. Subsequently she sued the corporation that she held responsible for her injuries, and her attorney requested the physician-plaintiff to testify on her behalf as an expert witness in that suit. The defendant herself did not expressly employ the physician-plaintiff, but she was present at the trial in the course of his testimony and, without objection on her part, listened to it. She refused to pay for the services thus rendered, however, and the physician-plaintiff sued to recover their value. The defendant did not deny the necessity for his testimony as an expert witness or the reasonableness of his fee, but she denied that she had employed him or that her counsel had authority to employ him on her behalf. On motion of the defendant, the trial court withdrew the case from the consideration of the jury, on the ground that the evidence did not support the plaintiff's claim. The physician-plaintiff thereupon appealed to the supreme court of New Jersey.

An attorney, said the supreme court, has no authority under his retainer to surrender or waive without the consent of his client any substantial legal right. But when the defendant's attorney obligated his client to the extent of $100, he did not surrender or waive any of his client's substantial rights. His act was that of a careful and prudent attorney, to protect and promote his client's interest. It is common knowledge, said the court, that, when one has sustained serious injuries, roentgenograms are frequently made by experts to determine the nature and extent of such injuries; that an expert is necessary to interpret such roentgenograms, and that it is common practice to use the testimony of such experts, whenever available, in a suit to recover damages for such injuries. Furthermore, continued the court, if the propriety of a challenged expenditure for which the defendant denied liability is to be judged by the result obtained, the defendant's failure to challenge either the necessity of the expert testimony given or the reasonableness of the fee charged is readily understood; in the case in which such testimony was given, the defendant in this case, who was the plaintiff there, recovered a verdict of $15,000.

It is far from a mere conjecture, said the supreme court, that if the attorney had failed to produce this expert testimony —and he could not produce it unless it was volunteered, without arranging for the payment of the expert—he might well have subjected himself to a claim of negligence, at the suit of his client. The supreme court was of the opinion, therefore, that an attorney who is retained to prosecute a suit for damages arising out of an accident has implied authority to obligate his client to pay the fee of an expert witness whom he employs to testify in behalf of such client, when the necessity for such a witness and the reasonableness of his fee are not challenged. Accordingly the supreme court reversed the judgment of the trial court withdrawing the case from the jury.—*Klein v. Boylan (N. J.), 179 A. 638.*

Malpractice: Joint Liability of Physicians.—The defendant Canfield, with the assistance of defendant Van Ark, treated the plaintiff's fractured leg. The plaintiff, alleging negligence, sued both physicians. The jury returned a verdict for the plaintiff, "$4,000 on Mr. [Dr.] Wilson Canfield and $2,000 on Bert Van Ark." The trial court rejected this verdict and directed the jury to retire again to the jury room, after instructing them as follows:

> You will retire to your jury room for reconsideration of your verdict. If you find both of these defendants guilty of negligence, you will return a verdict in one sum against both defendants for the total amount of plaintiff's damages.

The jury then returned a verdict for $6,000 against both defendants. Dr. Van Ark appealed to the Supreme Court of Michigan.

Each defendant, said the Supreme Court, while serving with the other is answerable for his own conduct and also for the conduct of the other which he either observed or in the exercise of reasonable diligence should have observed; for their joint acts of commission or omission both defendants are liable. An act done by one, however, in the absence of the other, unless done by agreement between them, cannot be attributed to the defendant who did not participate in it. Lack of skill or care on the part of Dr. Canfield, in the absence of Dr. Van Ark, cannot be charged against the latter. The jury, continued the court, by its first verdict, awarding damages amounting to $4,000 against Dr. Canfield and $2,000 against Dr. Van Ark, evidently found Dr. Canfield guilty of malpractice, not only jointly with Dr. Van Ark, but also separately from him. For the joint malpractice a single-sum verdict could be returned; for the malpractice of Dr. Canfield alone, no such verdict was permissible. The judgment entered on the second verdict was manifestly erroneous as to Dr. Van Ark; it failed to distinguish between the joint liability of the defendants and the liability of each of them separately, and it held Dr. Van Ark liable to respond in damages for malpractice of Dr. Canfield in which Dr. Van Ark was not a participant.

The court reversed the judgment against Dr. Van Ark and ordered a new trial.—*Rodgers v. Canfield (Mich.), 262 N. W. 409.*

Pharmacy Practice Acts: Validity of Provisions Limiting Registration to U. S. Citizens.—The California pharmacy practice act (St. 1905, p. 536, sections 2 and 3, as amended St., 1933, p. 2192) forbids the registration of persons who are not "citizens of the United States." Accordingly, the California state board of pharmacy refused to examine Sashihara and certain other applicants who came within this prohibition. The rejected applicants thereupon petitioned for a writ of mandamus to compel the board to examine them. The trial court entered a judgment for the board, and the plaintiffs appealed to the district court of appeal, second district, division 2, California.

The plaintiffs contended that the provisions of the pharmacy practice act referred to were invalid because in conflict with a treaty entered into between the United States and the nation of which they were subjects, which permitted citizens or subjects of each of the high contracting parties to carry on trade, to own shops, and generally to do anything incident to or necessary for trade on the same terms as native citizens or subjects. The matter, the district court of appeal answered, resolves itself into the question Is the occupation of being a pharmacist a trade or a profession? If it is a trade, the treaty is violated; if it is a profession, the treaty is not violated. In this connection it is necessary to keep in mind the distinction between the business or trade of a druggist as the owner or operator of a drug store, and the practice of pharmacy as such. A pharmacist compounds prescriptions and in so doing he is exercising his knowledge of the science of pharmacy; but who-

ever sells the compounded prescription to a customer, in so doing, acts as a clerk or as a merchant. The statute under discussion does not prevent aliens from operating or owning drug stores or working as clerks therein; it merely prohibits them from being registered as pharmacists and from compounding prescriptions. The court was satisfied that the practice of pharmacy is a profession and that therefore the pharmacy practice act was not in violation of the treaty referred to.

The plaintiff next contended that the requirements under discussion constituted an abuse of the police power, created an arbitrary and discriminatory classification, and denied to aliens the equal protection of the laws. We are satisfied, said the district court of appeal, that the object sought to be accomplished by the legislation in question is the protection of the public health, safety, and general welfare, and that there is a reasonable relation between that object and the means adopted. This court cannot say that the classification excluding aliens is palpably arbitrary. In the practice of pharmacy, chemicals and poisons are constantly used and compounded. If not handled with great caution, much harm might be inflicted. And it is obvious from these facts and others that there may be a reasonable basis for the existence of the discrimination against aliens and therefore that the act under discussion is not an abuse of the police power. The pharmacy practice act, accordingly, the court held, did not deny aliens the equal protection of the laws.

The court accordingly affirmed the judgment of the lower court, dismissing the petition for a writ of mandamus.—*Sashihara v. State Board of Pharmacy (Calif.), 46 P. (2d) 804.*

Accident Insurance: Death from Degeneration of Liver Attributed to Trauma.—The plaintiff was the beneficiary under two life insurance policies issued to her husband by the defendant insurance company. Each policy provided for double indemnity if the insured should die directly from bodily injury effected solely through external, violent, and accidental means, with the proviso, however, that if such accidental death should result directly or indirectly from bodily or mental infirmity or disease double indemnity would not be payable. On Nov. 19, 1930, the insured, in entering a building through a window, stepped on a table, which shot from under him, throwing him on his back on the cement floor. He had theretofore always been apparently well and vigorous. Immediately after the accident he appeared to be in pain and gave indications that his back was bothering him. Within a few days he became acutely ill and vomited, he lost his appetite and was not as active as formerly. On December 15, purple spots were seen on his legs and marks on his back. His hands and feet were swollen. He was taken to a hospital for observation, where he grew steadily worse. He died, Dec. 27, 1930, while undergoing an operation "to relieve an accumulation of gas." It was found that he had a chronic inflammation of the gallbladder, and gallstones, of apparently long standing. The insured died, according to the report of the case, of "a degeneration of the liver, causing purpura, which appears to be a breaking down of the blood vessels resulting in hemorrhages throughout the body."

Apparently, the insurer was willing to pay the face value of the policies but unwilling to pay double indemnity, to which the beneficiary was entitled only in event of death by accident. The beneficiary under the policy therefore brought suit. Three of the physicians who testified as experts for the plaintiff gave it as their opinion that the degeneration of the liver that caused the death of the insured was due solely to the accident and that the chronic condition of the gallbladder neither caused nor contributed to the death. On the other hand, two physicians who testified as experts for the insurer were of the opinion that the degeneration of the liver was caused by infection from the diseased gallbladder. All the medical witnesses, however, admitted that purpura might be caused either by trauma or by infection. The question of fact, then, was whether the degeneration of the liver in this case was (1) caused solely by the accident or (2) caused in whole or in part by the diseased gallbladder. This issue was clearly submitted to the jury, which found in favor of the plaintiff, in effect finding that the fatal degeneration of the liver was caused solely by the accident. Thereupon the insurer appealed to the United States circuit court of appeals, eighth circuit.

The insurer contended that, even if the accident was the sole cause of the degeneration of the liver, still the insurer was not liable for double indemnity; the degeneration of the liver was itself "a disease" and therefore the insured died "directly or indirectly from bodily . . . infirmity or disease." The language of the policy, however, said the circuit court of appeals, cannot be regarded as excluding from double indemnity coverage a death that results from a disease that is itself directly and solely caused by an accident. After having promised double indemnity for accidental death, it would take clear and precise language to limit the coverage of the policy to only such a death as is caused by an accident which produces no condition recognized as a disease.

The insurer further contended that the only inference that could be drawn from the evidence was that the condition of the gallbladder of the insured either caused or contributed to his death. The mere fact that the insured had a disease at the time of the accident, said the circuit court of appeals, does not prevent a recovery for accidental death if the disease had no causal relation to the death. Whether death was caused solely by the accident or wholly by the diseased gallbladder, or partly by the accident and partly by the diseased gallbladder, was clearly for the jury to determine and the jury's finding is conclusive. The trial court correctly charged the jury:

> If Mr. Still [the insured] sustained an accident, but at the time it occurred he was suffering from a pre-existing disease or bodily infirmity, and if the accident would not have caused his death if he had not been affected with the pre-existing disease or infirmity, but he died because the accident aggravated the effects of the pre-existing disease or bodily infirmity, or because the pre-existing disease aggravated the effects of the accident, then the defendant would not be liable under the double indemnity provision of the policies, because in such a case the death would be caused partly by disease and partly by accident. But even if the death was caused by a disease, which disease was not the result of any other bodily infirmity or disease in existence at the time of the accident, but which disease was itself caused by the external, violent and accidental means which produced the bodily injury, the defendant would be liable to pay the double indemnity because in such case the disease was the effect of the accident.

A judgment in favor of the plaintiff, the beneficiary under the policies contested, to recover double indemnity, was affirmed.—*Mutual Life Ins. Co. of New York v. Still, 78 Fed. (2d) 748.*

Society Proceedings

COMING MEETINGS

Alabama, Medical Association of the State of, Montgomery, Apr. 21-23. Dr. D. L. Cannon, 519 Dexter Avenue, Montgomery, Secretary.

American Association of Anatomists, Durham, N. C., Apr. 9-11. Dr. George W. Corner, 260 Crittenden Boulevard, Rochester, N. Y., Secretary.

American Association of Pathologists and Bacteriologists, Boston, Apr. 9-10. Dr. Howard T. Karsner, 2085 Adelbert Road, Cleveland, Secretary.

American College of Physicians, Detroit, Mar. 2-6. Mr. E. R. Loveland, 133 South 36th Street, Philadelphia, Executive Secretary.

American Physiological Society, Washington, D. C., Mar. 25-28. Dr. A. C. Ivy, 303 East Chicago Avenue, Chicago, Secretary.

American Society for Experimental Pathology, Washington, D. C., Mar. 25-28. Dr. Shields Warren, 195 Pilgrim Road, Boston, Secretary.

American Society for Pharmacology and Experimental Therapeutics, Washington, D. C., Mar. 25-28. Dr. E. M. K. Geiling, 710 North Washington Street, Baltimore, Secretary.

American Society of Biological Chemistry, Washington, D. C., Mar. 25-28. Dr. H. A. Matill, Chemistry Bldg., State University of Iowa, Iowa City, Secretary.

Arizona State Medical Association, Nogales, Apr. 23-25. Dr. D. F. Harbridge, 15 East Monroe Street, Phoenix, Secretary.

Federation of American Societies for Experimental Biology, Washington, D. C., Mar. 25-28. Dr. E. M. K. Geiling, 710 North Washington Street, Baltimore, Secretary.

Georgia, Medical Association of, Savannah, Apr. 21-24. Dr. Edgar D. Shanks, 478 Peachtree Street N.E., Atlanta, Secretary.

Missouri State Medical Association, Columbia, Apr. 13-15. Dr. E. J. Goodwin, 634 North Grand Blvd., St. Louis, Secretary.

National Tuberculosis Association, New Orleans, Apr. 22-25. Dr. Charles J. Hatfield, 7th and Lombard Streets, Philadelphia, Secretary.

Nebraska State Medical Association, Lincoln, Apr. 7-9. Dr. R. B. Adams, 15 N Street, Lincoln, Secretary.

Oklahoma State Medical Association, Enid, Apr. 6-8. Dr. L. S. Willour, 203 Ainsworth Building, McAlester, Secretary.

South Carolina Medical Association, Greenville, Apr. 21-23. Dr. E. A. Hines, Seneca, Secretary.

Southeastern Surgical Congress, New Orleans, March 9-11. Dr. Benjamin T. Beasley, 478 Peachtree Street N.E., Atlanta, Ga., Secretary.

Tennessee State Medical Association, Memphis, Apr. 14-16. Dr. H. H. Shoulders, 706 Church Street, Nashville, Secretary.

Current Medical Literature

AMERICAN

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Titles marked with an asterisk (*) are abstracted below.

American Journal of Cancer, New York

25: 721-968 (Dec.) 1935

*Observations on Administration of Large Doses of Calcium in Metastatic Carcinoma in Bone. A. Brunschwig, Chicago.—p. 721.
Myosarcoma of Diaphragm: Report of Two Cases. J. D. Kirshbaum, Chicago.—p. 730.
*Sternoclavicular Branchioma. B. M. Fried, New York.—p. 738.
Tumor of Adrenal Gland Composed of Elements of Bone Marrow Tissue. J. C. Richardson, Toronto.—p. 746.
Comparative Studies on Carcinogenesis in Rats. A. F. Watson, London, England.—p. 753.
Two Tumors of Soft Tissues Resembling Tumors of Bone. S. A. Jacobson, New York.—p. 763.
Schüller-Christian's Disease Under Observation for Nine Years. W. A. Hanson, L. H. Fowler and E. T. Bell, Minneapolis.—p. 768.
*Comparative Cytologic Study of Benign and Malignant Tissues. H. K. Fidler, Winnipeg, Manit.—p. 772.
Chemistry of Cell Division: V. Influence of Ascorbic Acid, Glutathione and Cysteine on Activity of Tumor Nuclease. Mary E. Maver and C. Voegtlin, Washington, D. C.—p. 780.
Effect of Sodium Formaldehydesulfoxylate on Rat Sarcoma. J. C. Krantz Jr., Ruth Musser, C. J. Carr and W. G. Harne, Baltimore.—p. 789.
Differences Observed in Tumor Incidence of Albino Strain of Mice Following Change in Diet. J. J. Bittner, Bar Harbor, Maine.—p. 791.
Possible Effect of Oil of Gaultheria in Diet of Mice Susceptible to Spontaneous Carcinoma of Breast: III. Survival Time. L. C. Strong, New Haven, Conn.—p. 797.
Nuclear-Nucleolar Volume Ratio in Cancer. P. H. Guttman, Sacramento, Calif., and S. Halpern, Denver.—p. 802.
Effect of Methylcholanthrene on Developmental Growth of Obelia Geniculata. F. S. Hammett and S. P. Reimann, Philadelphia.—p. 807.
Proliferation Retarding Effect of Cystine Disulfoxide. T. F. Lavine, North Truro, Mass.—p. 809.
Cancer in Java and Sumatra. C. Bonne, Batavia, Java, Netherlands East Indies.—p. 811.

Large Doses of Calcium in Metastatic Carcinoma in Bone.—Brunschwig cites two cases of metastatic carcinoma to bone from the breast (diagnosed roentgenologically) in which intensive calcium therapy was the apparent cause of a temporary sclerosis of the skeleton, with partial or almost complete filling in of many of the osteolytic lesions by bone. The severe pain accompanying these lesions was greatly relieved for long periods. No opiates or other analgesics were administered during the periods of symptomatic improvement. In one case there was a return to normal physical activity for one and one-half years. No roentgen therapy was administered to these patients during or prior to the periods in which temporary sclerosis of the skeleton occurred. In five other patients exhibiting osteolytic metastases from carcinomas of the breast, intensive calcium therapy, while affording in three instances some degree of amelioration of pain, failed after three, four and six months respectively to produce roentgenologic evidence of changes in the normal or involved portions of the skeleton. The fact that only two of seven cases responded to calcium therapy by showing roentgenologic evidence of osteosclerosis in the lesions and uninvolved bones is unexplained. The various factors that affect calcium balance were not taken into consideration during the periods of observation. Perhaps adjustment of these factors preliminary to and concurrently with intensive calcium therapy would have altered the incidence of sclerosis of the skeleton. The diagnosis of metastatic carcinoma to bone in these cases is only roentgenologic, but in the author's opinion no other condition under the circumstances could have caused the changes seen in the initial roentgenograms. No postmortem studies are available at this time.

Sternoclavicular Branchioma.—Fried presents two cases which showed a unilateral neuritis of the brachial plexus, a homolateral Horner's syndrome and an atrophic monoplegia of the corresponding arm. Roentgen examination of the affected side showed a dense shadow confined to the region of the first three ribs. The entire clinical course of the malady was dominated not so much by the malignant disease as by the proximity of the tumor to the brachial plexus, on which it had encroached. Postmortem examination revealed a squamous epithelial cancer originating in the region of the left sternoclavicular articulation, ultimately invading the infraclavicular and supraclavicular fossae, the clavicle and the upper three ribs. The pleura, the lungs and other viscera were free from tumor. The probable origin of the tumors from epithelial rests of the lower cleft of the branchial apparatus is discussed, and in accordance with their origin they are designated as "sternoclavicular branchiomas." Early recognition of the tumors is emphasized.

Cytologic Study of Benign and Malignant Tissues.—Fidler reviews the grounds on which the cytologic in contradistinction to the histologic diagnosis of malignant conditions may be made and presents evidence obtained from a study of 150 benign malignant tissues. He used the technic of Dudgeon and Patrick, who stress the importance of preparing the film immediately after the tissue is removed from the body. This, in the author's experience, is not necessary. Equally satisfactory smears can be prepared from tissues kept in water or saline solution for four hours. The smear, however, should be made from a freshly cut surface. The cut surface of a benign tissue when scraped with a sharp knife usually yields few cells. Those that do come away are characteristically in sheets or clumps, thus making a very irregular smear both grossly and microscopically. The cells are usually no more than one layer in thickness and have a flagstone or pavement arrangement. The cytoplasm stains pink and has a regular outline. The size and shape of the cell and nucleus are very regular. The smallest nucleus is never less than half the size of the largest, and usually the variation in nuclear size does not exceed 3:4. The fibrin network and chromatin material are fine and delicate. The nucleolus may be single or multiple, but its total area is small in comparison to the nucleus. It is round or oval and regular in size and shape. A typical malignant tissue presents an entirely different picture. The cells have no regular arrangement, and the pavement structure is never seen. Normal cells are adherent one to another because of the presence of a cement substance between the individual units. The absence of this adhesive quality is a striking feature of malignant cells. The cells are irregular in size and shape, and frequently the cellular outline is broken. The cytoplasm tends to stain more darkly than in benign cells and may contain inclusions of leukocytes, red blood cells and other protein débris. In making a diagnosis, the examination of the nucleus and its constituents is probably of the greatest importance, for, while the cytoplasm may be broken or even so completely disrupted as to render the nucleus naked, the nuclear membrane affords sufficient protection so that the outline and contents are undamaged. The nucleus is characterized by coarseness of all its elements. There is no regularity in its situation in the cell, but it is usually eccentrically placed. It is larger than usual and varies greatly in size and shape. The nuclear chromatin stains more deeply and may be found in large granules. The presence of multinucleated giant cells is the rule rather than the exception. The nucleolus is very large, single or multiple, and frequently has an irregular outline. It stains a pale red or violet and is sometimes surrounded by a clear halo, which forms a striking contrast. The author concludes that the results of his work seem to corroborate the contention of MacCarty, Dudgeon and Heiberg that the malignant cell is a morphologic entity and can be recognized in suitable preparations.

American Journal of Ophthalmology, St. Louis

19: 1-92 (Jan.) 1936

Carbohydrate Matrix of Epithelial Cell Inclusion in Trachoma. C. E. Rice, Rolla, Mo.—p. 1.
Sympathetic Ophthalmia: Part I. A. C. Woods, Baltimore.—p. 9.
Bullous Keratitis: Rational Therapy. J. Green, St. Louis.—p. 16.
Surgery of Glaucoma: Mode of Action of Cyclodialysis. O. Barkan, S. F. Boyle and S. Maisler, San Francisco.—p. 21.
Kayser-Fleischer Ring in Wilson's Disease and Microcephaly. L. Bothman and D. E. Rolf, Chicago.—p. 26.
Subjective Studies of Blind Spot and Visual Fields. E. Jackson, Denver.—p. 34.
Effects of Mydriatics on Intra-Ocular Tension. H. S. Gradle, Chicago.—p. 37.
Magnet Extraction of Intra-Ocular Foreign Bodies: Important Points in Technic. A. W. Morse, Butte, Mont.—p. 40.

American Journal of Public Health, New York

26: 1-94 (Jan.) 1936

Epidemiology of Malaria in the Philippines. P. F. Russell, New York.—p. 1.
*Progress Report on Pertussis Immunization. Pearl Kendrick and Grace Eldering, Grand Rapids, Mich.—p. 8.
The Health Conservation Contest: Why a Rural Contest? W. S. Rankin, Charlotte, N. C.—p. 13.
Id.: Getting Financial Aid. T. J. McCamant, El Paso, Texas.—p. 17.
Id.: School Medical Services, Davidson County, Tenn. J. J. Lentz, Nashville, Tenn.—p. 20.
Id.: Rural Tuberculosis, a Special Problem. R. M. Atwater, Olean, N. Y.—p. 23.
Leprosy in the Philippine Islands. G. C. Dunham, Manila, Philippine Islands.—p. 27.
How Tuberculosis Spreads in a Rural Community. Jean Downes, New York.—p. 30.
Sanitary Significance of Succession of Coli-Aerogenes Organisms in Fresh and in Stored Feces. L. W. Parr, Washington, D. C.—p. 39.
Parasites of Animals and Public Health in North America. T. W. M. Cameron, Montreal.—p. 46.
Monkey Test for Chill Producing Activity of Concentrated Antipneumococcus Serum. L. A. Barnes and E. S. Robinson, Boston.—p. 51.
Precision in Choice of Health Education Methods. W. P. Shepard and A. Arfsten, San Francisco.—p. 54.

Pertussis Immunization.—Kendrick and Eldering made a progress report on a pertussis immunization study in Grand Rapids, Mich. The series to date includes 1,592 children—712 in the test group and 880 in the control group. In the whole series there have been sixty-seven cases of whooping cough, of which sixty-three occurred among the controls. The data presented suggest that an active immunity has followed the injection of Bacillus pertussis vaccine under the conditions described. However, before a proper evaluation can be made of the data or definite conclusions drawn, it will be necessary to increase the number of subjects in the study and to await the accumulation of follow-up data over a longer period of time.

American Journal of Surgery, New York

30: 397-578 (Dec.) 1935

Location and Preservation of Parathyroid Glands. J. W. Hinton, New York.—p. 400.
Technic of Adrenalectomy and Adrenal Denervation. J. L. De Courcy, Cincinnati.—p. 404.
Ununited Fractures of Neck of Femur: Treatment by Bifurcation Operation. W. I. Galland, New York.—p. 410.
Internal Fixation in Fractures of Hip (Martin Method). W. R. Brewster, New Orleans.—p. 420.
Subtalus Dislocation of the Foot: Report of Two Cases. D. C. Straus, Chicago.—p. 427.
*Pelvic Pain in Women: Treatment by Resection of Superior Hypogastric Plexus: Report on Thirty-Nine Cases. E. A. Kindel, Cincinnati.—p. 435.
Physiologic Considerations and Hospital Management of Bleeding in Late Pregnancy. E. G. Waters, Jersey City, N. J.—p. 444.
Placental Attachment and Separation, as Influenced by Vacuum Action, Equilibrating Force and Retroplacental Blood. L. Drosin, New York.—p. 450.
Variations in Gross Anatomy of Stellate and Lumbar Sympathetic Ganglions. S. Perlow and K. L. Vehe, Chicago.—p. 454.
Primary Thrombosis of Axillary Vein. B. V. McClanahan, Galesburg, Ill.—p. 459.
Acute Epididymitis: Report of Sixty-Five Cases Treated with Modified Bellevue Adhesive Suspensory. J. P. Robertson and A. B. Lee, Birmingham, Ala.—p. 462.
Multiple Urograms: Their Advantage in Urologic Diagnosis. J. S. Lewis Jr., Youngstown, Ohio.—p. 469.
Traumatic Appendicitis. U. Maes with Elizabeth M. McFetridge, New Orleans.—p. 478.
Appendicitis in Puerto Rico: Observations Based on Critical Analysis of Two Hundred and Forty-Four Cases. W. R. Galbreath and F. G. Irwin, San Juan, Puerto Rico.—p. 483.
Surgical Treatment of Peptic Ulcerations (Billroth I Method). M. E. Steinberg, Portland, Ore.—p. 490.
Congenital Duodenal Obstruction from Anomalous Mesenteric Vessels. E. P. Buchanan, Pittsburgh.—p. 499.
Complete Rectal Occlusion Necessitating Colostomy Due to Carcinoma of Prostate. J. A. Lazarus, New York.—p. 502.
Inguinal Hernia of Bladder. A. Bierhoff and A. S. Unger, New York.—p. 506.
*Use of Nupercaine Ointment in Eye for Relief of Pain Resulting from Trauma. W. C. Minnich, Philadelphia.—p. 508.
Value of Surgery and X-Ray Treatment in Carcinoma of Breast. R. T. Pettit, Ottawa, Ill.—p. 510.
Study of Cancer: Recent Advances of Clinical Significance. J. J. Stein, Cincinnati.—p. 515.

Pelvic Pain in Women.—Kindel believes that the hypogastric plexus carries the important pathways of sensation from the internal genital organs to the medullary centers and that section of the superior hypogastric plexus is a safe, simple and efficacious way of interrupting these pathways. He believes that resection of the superior hypogastric plexus has a definite place in gynecologic surgery but should be employed in carefully selected cases. It is not to be used as an immediate procedure in all cases of plexalgia; particularly is this true in adolescent girls, whose first few periods may be irregular and painful. In many instances this pain disappears in a few years and especially after a pregnancy. He feels certain that failure to recognize this type of pelvic pain (plexalgia) accounts for some of the poor results in gynecologic surgery. This is evident in the fact that one fourth of his patients had been operated on previously.

Use of Nupercaine Ointment in the Eye.—Minnich used the commercial nupercaine ointment, which contains 1 per cent of the anesthetic base in hydrous wool fat and petrolatum, for the relief of pain from trauma to the eye in 105 cases. The results from the outset were most gratifying. Within three to five minutes following application of the ointment to an injured eye, there was usually entire relief from pain, relief which persisted more or less completely for twenty-four hours in the majority of instances. When necessary the eye is cleansed with some mild antiseptic douche; any foreign body is removed and then a small amount of the ointment is applied to the injured eye. In no case is the patient supplied with the ointment for use at home, but he is instructed to report the following day. In a large proportion of the cases a single application of the ointment was required; in others, two or more were necessary. In one patient, seen some time after severe burns of the cornea with wet cement and at the time of first examination presenting, as the result of neglect, a well defined corneal ulceration, the ointment not only relieved the discomfort but its daily application for sixteen successive times was followed by progressive improvement in the ocular condition. In none of the 105 cases was there the least indication of an injurious effect from the ointment on the cornea; and all patients continued to work at their usual occupations.

American Review of Tuberculosis, New York

33: 1-138 (Jan.) 1936

*Pulmonary Rest by Posture. P. H. Pierson and R. R. Newell, San Francisco.—p. 1.
Interrelationships of Tuberculosis, Syphilis and Antisyphilitic Treatment. P. Padget and J. E. Moore, Baltimore.—p. 10.
*Problem of Coexisting Syphilis and Tuberculosis in Light of Current Opinion and Practice. C. St. C. Guild and Marion Nelson, New York.—p. 31.
First Steps in Pneumolysis. C. H. Andrews, Prince Albert, Sask.—p. 36.
Results in Intrapleural Pneumolysis. L. S. Peters and P. G. Cornish, Albuquerque, N. M.—p. 44.
Fibrin Bodies in Pleural Space in a Case of Artificial Pneumothorax, with Necropsy. W. A. Zavod, Valhalla, N. Y.—p. 48.
Primary Tuberculosis: Observations Among Tuberculosis Contacts. M. H. Joress, Boston.—p. 55.
Bilateral Apical Nontuberculous Bronchiectasis: Report of Case. J. Steidl and F. H. Heise, Trudeau, N. Y.—p. 61.
Leukocytic Blood Picture in Active and Inactive Tuberculosis: Comparison of Differential Blood Counts Made During Clinical Activity with Others Made After Clinical Arrest. W. H. Morriss and G. C. Wilson, Wallingford, Conn.—p. 66.
Infraglottic Perforating Tuberculous Ulcer of Larynx. F. I. Putnam, Tucson, Ariz.—p. 75.
Statistical Study of Results of Group Tuberculin Testing with MA-100: Final Report of the National Tuberculosis Association. Jessamine S. Whitney and Isabel McCaffrey.—p. 78.
Saprophytic Acid-Fast Bacilli from Ureteral Specimens. A. H. Wells, Kansas City, Mo.—p. 91.
Spontaneous Pneumothorax (Rupture of Lung) with Abdominal Symptoms in Course of Artificial Pneumothorax: Report of Two Cases. M. H. Joress, Boston.—p. 98.
*Tannin Treatment in Tuberculosis: Preliminary Report. S. Loumos and S. H. Rosenblum, Chicago.—p. 101.

Pulmonary Rest by Posture.—In questioning patients with pulmonary tuberculosis, Pierson and Newell found that some had no preference as to position and that many preferred to lie on the side of their good lung. Animal and clinical investigation revealed that the mediastinum falls toward the down side according to its flexibility. The (essentially hydrostatic) pressure of the abdominal viscera pushes the diaphragm cephalad on the down side but exerts practically no pressure cephalad on the up side (average 15 cm. water pressure greater on the down side than on the up side). The increased motion of the diaphragm on the down side is aided by the fact that a muscle

under tension reacts more actively, inspiration being a thrust against the pressure of the abdominal contents. Quiet expiration is a passive motion. On the up side it is done by the elastic recoil of the lung, which diminishes as the lung contracts. On the down side it is done mostly by the subdiaphragmatic pressure of the abdominal contents, a force which continues practically undiminished no matter how far cephalad the diaphragm moves. To say that if a patient lies on one or the other side he automatically rests or splints the down lung is not borne out by these observations, and the reverse seems to be the fact. If rest of a lung is desired, it may be obtained by paralyzing the phrenic nerve and having the patient lie on that side. The authors state that if their experiments with dogs are sound it is evident that there is not only more motion in the down lung but also more tidal air moved by that side.

Coexisting Syphilis and Tuberculosis.—Guild and Nelson collected data on 20,281 tuberculosis patients (17,348 white, 2,933 Negro) on whom routine blood tests were made. Of these, 4.1 per cent of the white and 21 per cent of the Negro patients gave a positive Wassermann and Kahn reaction. Institutions that make a blood test only because of some special indication or at the request of the patient miss three out of every four cases of syphilis (syphilitic infection). Since the incidence of syphilis in this group is not significantly higher than one would expect to find in similar racial and age groups in the general population, the evidence suggests that syphilis does not predispose to tuberculosis. One third of all tuberculosis patients who have syphilis receive no antisyphilitic treatment whatever. While in most sanatoriums both the arsenicals and the heavy metals are used in the treatment of syphilis, a few use nothing but the arsenicals, and others nothing but the heavy metals. Only in the use of neoarsphenamine was it possible to indicate the divergence of opinion as to the proper dosage. Here the authors found ten institutions using a fractional dose, sixteen a dose of average size, and one an amount considered high for routine administration even in a nontuberculous patient. It seems reasonable to expect that a study of a large number of case records will confirm or disprove Chadwick's opinion that syphilis lowers a patient's resistance to tuberculosis, or that careful observation of a large series of cases would finally answer the question as to whether or not the coexisting syphilis should be treated. If so, the next step would be to determine the drug or drugs of choice under different circumstances and their optimal dosages.

Tannin Treatment in Tuberculosis.—Loumos and Rosenblum used sodium tannate hypodermically in a solution of 0.5 per cent on alternate days in the intrascapular region in twenty unselected cases of tuberculosis, nineteen pulmonary and one lymphatic. The patients have taken tannin for from two and a half to five months so far. The treatment failed to show any benefit in six cases. These cases were progressive and probably in some of them the medication activated the process. In these cases the treatment was discontinued in the fourth or sixth week. In the other thirteen cases, six presented cavities and seven showed infiltration. Nine showed definite improvement clinically, progressive increase of weight, less expectoration, increase of appetite and strength and less pronounced râles. In the other four, while there was no increase in weight, the general condition improved as well as the appetite and strength, and the pulmonary signs became less pronounced. Roentgenologically, seven improved definitely. Of these thirteen cases, three were slow, progressive, febrile cases; the fever in one disappeared after four months of treatment and in the other two became lowered. Four patients were improving slowly before the treatment, but after that they improved rapidly. Six cases were stationary for several months and started to improve after the treatment. A 1 per cent solution was tried in the cases that failed to improve, but without result. The medication was entirely harmless, as there were no reactions. In the case of bilateral cervical lymphadenitis, an increase of the discharge was observed in the beginning of treatment, followed by a lessening and finally disappearance after twenty injections; 1 cc. of the solution had been given on alternate days. At the same time, in the enlarged lymph nodes without suppuration, rapid swelling and suppuration were observed. Because of this reaction, the injections were discontinued and the sodium tannate was given by mouth with iodine. The amount given was 0.15 Gm. of sodium tannate and 0.1 Gm. of iodine daily, made in the form of a syrup. In this way reactions were avoided.

Annals of Surgery, Philadelphia

103: 1-160 (Jan.) 1936

Primary Carcinoma of Lung or Bronchus. E. A. Graham, St. Louis.—p. 1.
Surgical Risk, with Especial Reference to Cardiovascular System. J. S. Rodman and W. G. Leaman, Philadelphia.—p. 13.
Renal Phase of Surgical Risk. L. G. Rowntree, Philadelphia.—p. 24.
Pantocain in Spinal Anesthesia. D. C. Bull and C. B. Esselstyn, New York.—p. 29.
*Carbon Dioxide Absorption Technic in Anesthesia. R. M. Waters, Madison, Wis.—p. 38.
Preanesthesia Narcosis with Paraldehyde. J. Henderson, New York.—p. 46.
Simple Dermoid Cysts of Breast. J. G. Menville, Rochester, Minn.—p. 49.
Tuberculosis of Breast. L. Berger and H. Mandelbaum, Brooklyn.—p. 57.
Acute Cholecystitis Associated with Pancreatic Reflux. R. Colp, I. E. Gerber and H. Doubilet, New York.—p. 67.
Surgery of Gallbladder and Biliary Tract. F. Glenn, New York.—p. 77.
Appendicitis: Analysis of Forty-Eight Hundred and Thirty-Three Cases. L. L. Hobler, Elmira, N. Y.—p. 86.
*Spina Bifida: Treatment and Analysis of Eighty-Four Cases. I. E. Siris, Brooklyn.—p. 97.

Carbon Dioxide Absorption Technic in Anesthesia.—Waters has observed more than 15,000 administrations with the completely closed or carbon dioxide absorption technic. It has been found pleasant and convenient from the standpoint of the anesthetist, the patient and the surgeon. The hospital management has found it economical. In 73.8 per cent of these cases the various agents were administered by the carbon dioxide absorption technic. The total mortality was 3.7 per cent due to respiratory (0.6), circulatory (0.9), anesthetic (0.05) and other (2.1) causes. The acquisition of a mastery of anesthesia in art and in practice, with a thorough appreciation of the underlying physiology and pharmacology, involves for the average medical graduate an intensive training of not less than three years. The knowledge and skill of the individual who administers an anesthetic drug is far more important than is the agent which he administers or the technic by which he administers it. A patient suffering from an injury to the brain enters the average hospital once in twenty days, whereas twenty patients in the average hospital have the brain and many other organs injured every day with anesthesia. The author does not mean to give the impression that the chemical absorption of carbon dioxide from anesthetic mixtures will revolutionize anesthesia but that only "the quality of the physician's care and skill" will do that.

Spina Bifida.—Siris gives an analysis of eighty-four cases of spina bifida; forty-seven patients were not operated on. Of those not operated on, all but one had died within twenty-four hours to one year after admission to the hospital. Of the thirty-seven patients operated on there was a hospital mortality of 32.3 per cent and those who survived the operation have been followed for periods of from two months to ten years. Successful surgical intervention is dependent on the condition of the coverings of the protrusion, the contents of the dura and the extent of involvement of the nerve, cord and brain tissue if present, the extent of the defect in the bony structure, and the degree of hydrocephalus and other congenital deformities and anomalies. The prognosis in infants who are suitable for operation is best when the operation is performed as soon after birth as the general condition permits, before unavoidable pressure produces ulceration and impending rupture, with leakage of cerebrospinal fluid and ascending meningitis, marasmus or some intercurrent disease to which they are susceptible. The possibility that hydrocephalus may follow operative correction of a spina bifida should not cause one to defer intervention in a suitable case. Of the thirty-two children whose sacs were amputated, hydrocephalus increased in seven of the eight children in whom it was previously present and it was precipitated in but four of the children in whom there was no previous evidence of hydrocephalus. Hydrocephalus was not increased in a child in whom the sac was preserved and it was not precipitated in four other children in whom the dura and arachnoid were retained. The preservation of the dural sac as advocated by Penfield and Cone

is recommended as the operative procedure of choice. The presence of a spinal or occipital herniation which is thin, tense and then ruptures and alternately closes and ulcerates with a discharge of cerebrospinal fluid, complicated by a slowly progressive hydrocephalus, does not in all cases contraindicate surgical intervention, as the results of some of the operations are gratifying.

Archives of Dermatology and Syphilology, Chicago

33: 1-208 (Jan.) 1936

Neoplastic Disease of Reticulo-Endothelial System. J. F. Fraser and H. J. Schwartz, New York.—p. 1.
*Leprosy Associated with Dermatitis Atrophicans Diffusa et Progressiva. V. Pardo-Castello, Havana, Cuba.—p. 12.
*Maggot Therapy in Dermatologic Practice: Report of Case of Chronic Ulcerating Granuloma of Undetermined Etiology in Which Maggot Therapy Was Used. S. Ayres Jr., N. P. Anderson and G. M. Taylor, Los Angeles.—p. 21.
*Coccidioidal Granuloma: Comparison of the North and South American Diseases, with Especial Reference to Paracoccidioides Brasiliensis. J. W. Jordon and F. D. Weidman, Philadelphia.—p. 31.
Histologic Evidence of Epithelioma of the Skin. D. L. Satenstein, New York.—p. 48.
Avian Itch Mites as Cause of Human Dermatoses: Canary Birds' Mites Responsible for Two Groups of Cases in New York. M. B. Sulzberger and I. Kaminstein, New York.—p. 60.
Mixed Tumor of Palate: Report of Case. J. R. Driver, Cleveland.—p. 73.
Localized (Lichen) Amyloidosis of the Skin: Report of Two Cases, with Vital Staining of Amyloid Nodules by Congo Red Injected Intracutaneously or Subcutaneously. R. Nomland, Chicago.—p. 85.
Dermatitis Nodularis Necrotica: Report of Case with Autopsy Observations. W. W. Duemling, Fort Wayne, Ind.—p. 99.
Generalized Lentigo: Its Relation to Systemic Nonelevated Nevi. E. P. Zeisler and S. W. Becker, Chicago.—p. 109.

Leprosy Associated with Diffuse and Progressive Atrophic Dermatitis.—Pardo-Castello reports a case of diffuse and progressive cutaneous atrophy apparently due to leprosy. The unusual features were the universality of the atrophy, which affected practically the whole cutaneous surface except the palms and soles, the absence of other manifestations of leprosy and, finally, the awakening of the infection and the development of an acute attack of the disease following intramuscular injections of chaulmoogra oil. The clinical aspect as well as many features of the histologic picture were similar to, if not identical with, those in the cases of chronic atrophic dermatitis reported in the literature. The only definite characteristics in the present case were the great number of vacuolated or foamy histiocytes in the cellular infiltrate and the appearance of lepra cells of Virchow and the presence of Hansen's bacilli in the lymph during the terminal acute outbreak.

Maggot Therapy in Dermatologic Practice.—Ayres and his associates discuss the case of a chronic ulcerating granuloma of a year's duration, in which the introduction of maggot therapy for eight weeks was followed by complete healing in another eight weeks. The result suggests the applicability of maggot therapy to other types of dermatologic conditions involving chronic ulcerative or granulomatous processes, such as amebic ulceration of the skin, coccidioidal granuloma and spreading ulcerative and gangrenous infections of the abdominal wall, which occasionally follow appendectomy. There is psychic resistance to be overcome in instituting this type of therapy.

Coccidioidal Granuloma.—Jordon and Weidman are of the opinion that Coccidioides immitis is firmly established as the cause of most, if not all, cases of North American coccidioidal granuloma as at present recorded. It also caused two cases in Argentina. A radically different fungus, Paracoccidioides brasiliensis, is the cause of numerous cases in Brazil of a disease which heretofore also has been regarded as coccidioidal granuloma. The authors secured two strains of the latter fungus and compared them with two North American strains of Coccidioides immitis. They proved to be radically different in culture tubes and under the microscope and as to pathogenicity for laboratory animals. Only in tissue was there any resemblance between the two parasites, yet even there certain differences could be established. They believe that Paracoccidioides brasiliensis constitutes a new species. In view of the widely differing character of the diseases produced by the two species, it is doubtful whether the disease produced by Paracoccidioides brasiliensis should be included in the category of coccidioidal granuloma. It is recommended that the name "Almeida's disease" be applied to the maladies caused by Paracoccidioides brasiliensis. Previously reported knowledge of North American cases of coccidioidal granuloma should be reexamined in the full light of Almeida's disease. Paracoccidioidal granuloma is a third fungous disease that must be added to blastomycosis and coccidioidal granuloma when the problem arises of differentially diagnosing blastomycosis from coccidioidal granuloma either clinically or histologically.

Archives of Ophthalmology, Chicago

15: 1-162 (Jan.) 1936

Papilledema and Optic Neuritis: A Retrospect. L. Paton, London, England.—p. 1.
Nerve Supply to Orbicularis Muscle and Physiology of Movements of Upper Eyelid, with Particular Reference to Pseudo-Graefe Phenomenon. M. B. Bender, New York.—p. 21.
*Local Quinine Therapy for Some Diseases of Conjunctiva and Cornea. E. Selinger, Chicago.—p. 31.
Transitory Choked Disk: Report of Case with Eleven Year Follow-Up Study. E. Krimsky, Brooklyn.—p. 36.
The Aqueous: Its Generation, Functions and Circulation. H. Smith, Sidcup, England.—p. 40.
Effect of Bacterial Lysate on Staphylococcic Keratoconjunctivitis in Rabbits. M. M. Strumia and H. W. Scarlett, Philadelphia.—p. 47.
Notes on Pathology and Surgical Treatment of Sympathetic Ophthalmia. B. Samuels, New York.—p. 59.
Treatment of Iris Bombé by Iridectomia ab Externo: Report of Cases. W. D. Horner, San Francisco.—p. 70.
Biochemistry of Lens: V. Cevitamic Acid Content of Blood and Urine of Subjects with Senile Cataract. J. Bellows, Chicago.—p. 78.
Reply to Criticisms of My Theory on the Genesis of Myopia. G. Levinsohn, Tel-Aviv, Palestine.—p. 84.
Blood Lipids in Lipaemia Retinalis. A. Marble and Rachel M. Smith, Boston.—p. 86.
Intracapsular Extraction of Cataract in Average Practice: Report of One Hundred Cases in Which Verhoeff's Method Was Used. S. J. Beach and W. R. McAdams, Portland, Maine.—p. 95.
Structure and Functions of Angle of Anterior Chamber and Schlemm's Canal. O. Barkan, San Francisco.—p. 101.

Local Quinine Therapy for Some Eye Diseases.—According to Selinger, quinine locally is a bactericide and astringent and is slightly anesthetic to mucous membranes. It possesses the property of penetrating through mucous membranes when applied locally, and by its action as a protoplasmic poison it causes the destruction of leukocytes, lymphocytes and other cellular elements. It also inhibits the invasion of the tissues by these cells. These well known pharmacologic properties explain the favorable therapeutic action of quinine bisulfate in cases of trachoma, interstitial keratitis, old corneal opacities and a few other diseases of the conjunctiva and cornea.

Arkansas Medical Society Journal, Fort Smith

32: 119-136 (Jan.) 1936

*Rôle of Allergy in Arthritis. W. T. Wootton, Hot Springs National Park.—p. 119.
Malaria in Arkansas. W. B. Grayson, G. Hastings, H. V. Stewart and Mildred M. Moss, Little Rock.—p. 123.

Rôle of Allergy in Arthritis.—Wootton gives allergy the stellar rôle in the initial manifestation of arthritis. Practically all nonseptic disturbances of the joint begin as an allergic reaction, comparatively few as a trauma. The simple allergic joint, that is, the acute gonorrheal, acute rheumatic fever, gouty and traumatized joints all show the same lack of pathologic and roentgenologic observations; only an edematous swelling is apparent. Chronic arthritis is the result of a dual process. Hyperparathyroidism is necessarily concomitant with the allergic or edematous process before any change may take place in the bone. The hormone from the parathyroids is the only known endocrine agent that may cause a hypercalcemia. In the event of a hypercalcemia occurring at a period when there is no synovial disturbance the calcium is taken up from the trabeculae, causing osteitis fibrosa cystica, Paget's disease and similar conditions. On the contrary, an atrophic arthritis results. Bacterial allergens from foci of infection predominate in the early life of the arthritic patient, and food proteins later. The two may be active at the same time. In the latter years kidney permeability to the excess of calcium, phosphorus and magnesium may bear a definite relation to a redeposit, constituting the hypertrophic type of arthritis. The parathyroids are inaccessible and too little understood to bear tampering with by the inexperienced. A vast amount of research work remains to be done before this theory can be proved or disproved or

add greatly to the protective measures needed. As a basis for the study of arthritis, this theorem offers a plausible outline for a regimen that should both prevent and alleviate arthritis.

Colorado Medicine, Denver

33: 1-72 (Jan.) 1936

Diseases and Dysfunctions of the Thyroid Gland. E. P. Sloan, Bloomington, Ill.—p. 12.
Elliott Treatment in Pelvic Inflammation and Dysmenorrhea. L. D. Dickey, Fort Collins.—p. 16.
Causes of Death in Surgical Collapse of Lungs. O. S. Levin, Denver.—p. 20.
*Treatment of Asthma with Ethylhydrocupreine. W. C. Service, Colorado Springs.—p. 24.

Treatment of Asthma with Ethylhydrocupreine.—Service gave ethylhydrocupreine to sixteen patients, eleven of whom showed favorable results, while five were not benefited. Ethylhydrocupreine was used in doses of 4 grains (0.25 Gm.). The patient is instructed to eat no breakfast and to take no medication by mouth during the morning. One capsule is taken at 8 a. m. and one at 10 a. m. With each capsule, 8 ounces (240 cc.) of milk is taken and as much more allowed as is desired. The noon and evening meals are taken as usual and any oral medication during the afternoon and evening. The next two mornings the same schedule is repeated. Then a rest of two days is given and the program is repeated. Following a second course, the treatment should be individualized. Some may be free from asthma and remain free. Others may remain free by taking one capsule each day for two or three days, and then following it with a period of rest. The object is to get the patient on as small a dosage as will keep him free. Most patients will remain free after two months of treatment, and then an occasional dose should be given if early signs of asthma appear. Patients who obtain relief with ethylhydrocupreine will notice first that the attacks do not occur in acute spasms, but that a gradual tightness of the chest develops. Expectoration is increased slightly and, instead of being difficult to raise, it is brought up easily and this usually serves to relieve a spasm of the chest. The relief from the terror of fighting for breath is marked in those patients who have spasmodic coughing attacks, because the mucus is raised without effort. The drug may be productive of toxic symptoms and should be discontinued in cases in which the patient complains of tinnitus, gastrointestinal distress or visual disturbances. Patch tests may give valuable information as to drug idiosyncrasy. The drug is not without danger; therefore each patient should be put on a minimal dosage.

Indiana State Medical Assn. Journal, Indianapolis

29: 1-56 (Jan. 1) 1936

Insanities of Famous Men. L. J. Karnosh, Cleveland.—p. 1.
Organized Professional Anesthesia. F. T. Romberger, Lafayette.—p. 8.
Derangement of Semilunar Cartilage of Knee. E. B. Mumford, Indianapolis.—p. 11.
Acute Otitis Media. J. V. Cassady, South Bend.—p. 17.
Diagnosis and Treatment of Traumatic Lesions of Urinary System. E. Rupel, Indianapolis.—p. 20.
Diabetes in Pregnancy. H. F. Beckman, Indianapolis.—p. 23.

Iowa State Medical Society Journal, Des Moines

26: 1-64 (Jan.) 1936

Common Duct Injuries and Reconstruction. J. F. Erdmann, New York.—p. 1.
Treatment of Anemias. V. E. Levine, Omaha.—p. 6.
Coronary Thrombosis. A. G. Felter, Van Meter.—p. 14.
Rocky Mountain Spotted Fever: Report of Case. J. R. Rankin, Keokuk.—p. 15.
Id.: Report of Mild Case. R. D. Stone, Sully.—p. 16.
Present Status of Management of Meningitis Secondary to Otitic or Sinus Infections. J. A. Downing, Des Moines.—p. 17.
Present Status of Management of Petrositis. F. H. Reuling, Waterloo.—p. 20.
Present Status of Management of Myopia. J. E. Dvorak, Sioux City.—p. 25.
Operative Treatment of Female Sterility (Tubal Implantation). E. von Graff, Des Moines.—p. 31.
Etiology and Pathology of Nontuberculous Pulmonary Diseases (Excluding Pneumonia). A. C. Starry, Sioux City.—p. 33.
X-Ray Findings in Nontuberculous Lung Diseases (Excluding Pneumonia). H. W. Dahl, Des Moines.—p. 36.
Therapy in Nontuberculous Pulmonary Diseases. G. R. Johnson, Ottumwa.—p. 38.

Journal of Bone and Joint Surgery, Boston

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Experimental and Pathologic Studies in Degenerative Type of Arthritis. W. Bauer and G. A. Bennett, Boston.—p. 1.
Streptococcic Dissociation in Pathogenesis of Chronic Rheumatoid Arthritis. L. G. Hadjopoulos and R. Burbank, New York.—p. 19.
*Effect of Lumbar Sympathectomy on Growth of Legs Paralyzed by Anterior Poliomyelitis. R. I. Harris and J. L. McDonald, Toronto.—p. 35.
Osteosynthesis in Spinal Tuberculosis. J. Calvé and M. Galland, Berck-Plage, France.—p. 46.
Arthrodesis of Hip for Coxalgia in Children. A. Richard, Paris, France.—p. 49.
Treatment of Quiescent Tumor Albus and Pseudarthrosis of Tuberculous Origin in Children. A. Delahaye, Berck-Plage, France.—p. 51.
Surgical Treatment of Sacrocoxalgia. L. Allard, Berck-Plage, France.—p. 54.
Further Studies of Fixed Paralytic Pelvic Obliquity. L. Mayer, New York.—p. 87.
Relation of Prostate Gland to Orthopedic Problems. W. S. Duncan, Cleveland.—p. 101.
Rôle of Iliotibial Band and Fascia Lata as Factor in Causation of Low Back Disabilities and Sciatica. F. R. Ober, Boston.—p. 105.
*Sacrarthrogenetic Telalgia: I. Study of Referred Pain. H. C. Pitkin and H. C. Pheasant, San Francisco.—p. 111.
Some Orthopedic Findings in Ninety-Eight Cases of Hemophilia. H. B. Thomas, Chicago.—p. 140.
Cortical Avulsion Fracture of Lateral Tibial Condyle. H. Milch, New York.—p. 159.
Surgical Management of Pes Calcaneus. O. L. Miller, Charlotte, N. C.—p. 169.
*Treatment of Clubfeet. L. T. Brown, Boston.—p. 173.
Use of Fascia Lata to Stabilize the Knee in Cases of Ruptured Crucial Ligaments. D. M. Bosworth and B. M. Bosworth, New York.—p. 178.
Stabilization of Hip by Transplantation of Anterior Thigh Muscles. L. C. Wagner and P. C. Rizzo, New York.—p. 180.
Fractures and Dislocations About Shoulder. R. V. Funsten and P. Kinser, University, Va.—p. 191.
Old Traumatic Displacement of Distal Femoral Epiphysis: Successful Open Reduction Followed by Epiphyseal Arrest of Normal Femur. D. H. Levinthal, Chicago.—p. 199.
Interesting Malignant Bone Tumors. O. C. Hudson, N. H. Robin and P. A. Robin, Hempstead, N. Y.—p. 215.
Form of Balanced Traction: Modification of Russell Traction. A. Marians, Brooklyn.—p. 234.
Gout: Unusual Manifestation in Stump. W. E. Kendall, H. C. Fortner and S. K. Livingston, Hines, Ill.—p. 240.
Colon Bacillus Osteomyelitis. M. B. Cooperman and G. S. Leventhal, Philadelphia.—p. 242.

Effect of Lumbar Sympathectomy on Growth of Paralyzed Legs.—Harris and McDonald believe that prolonged increase in the blood supply to the lower extremity of a growing child can result in acceleration of the growth of the involved extremity. The increase in blood supply that follows lumbar sympathectomy is capable of inducing acceleration of the rate of growth. The shortness that follows paralysis of the lower extremity from poliomyelitis is due to the loss of accessory factors that normally enhance the basic growth rate of the epiphyseal line. The known factors are the contractions of normal muscles and the maintenance of a normal blood supply. Under appropriate circumstances, lumbar sympathectomy will diminish the shortness due to poliomyelitis. The factors favorable to a good result are paralysis limited to one lower extremity, paralysis moderate in degree, early operation (at the age of 6 years, if possible), use of ganglionectomy rather than ramisection, and maintenance of the increased vascularity that follows the operation.

Sacrarthrogenetic Telalgia.—Pitkin and Pheasant base their study on an analysis of 506 examinations for low-back disability, chosen from a series of nearly 1,000 because of their completeness. Its scope is limited to a study of the pain caused by lesions of the sacro-iliac and sacrolumbar joints, and its purpose is to advance the following definition in the interest of more accurate anatomic nomenclature. "Sacrarthrogenetic telalgia" is in no sense a diagnosis but is a descriptive term that should be applied to the typical syndrome of pain originating in the sacro-iliac and sacrolumbar articulations and their accessory ligaments. The referred pain (telalgia) affects the gluteal or the sacral region, or both regions, and may affect any part or all parts of the lower extremities and genito-inguinal regions except the internal crural and plantar regions. The lesions that produce this type of pain are associated with lateral spinal scoliosis. They do not cause objective neuropathologic manifestations other than reflex physiopathic disorders and the atrophy of disuse. Sacrarthrogenetic telalgia is

not the result of irritation or compression of the trunks of peripheral nerves and must not be confused with radiculitis, neuritis or neuralgia. When caused by intra-articular ligaments, telalgia appears only in the intergluteal triangle. Pathologic changes in the tension of, or irritative stimuli applied to, the extra-articular ligaments of the upper sacral joints cause telalgia in the lower extremities. Telalgia that affects the lateral crural region originates in the posterior sacro-iliac and sacro-ischial ligaments. In presenting the results of their clinical and anatomic research, the authors have included only those observations which are related to the following sources of confusion in sciatica and low-back pain: (1) the inaccuracy of the nomenclature of referred pain, (2) the influence of inaccurate nomenclature on pathologic concepts, (3) the difference of opinion with regard to the localization of dermatomic areas, (4) the lack of specific descriptions of the innervation of the upper sacral joints and their ligaments, and (5) the vague descriptions of tenderness of various anatomic structures.

Treatment of Clubfoot.—Brown has found that marked overcorrection of all the deformities of clubfoot can be obtained by the use of continuous slight traction by means of elastic bands. Since this method has been followed, it has not been necessary, in children up to the age of 5 years, to use forcible manipulations, ether, tenotomies, or stretching by frequently changed plaster casts or adhesive plaster.

Journal of Clinical Investigation, New York

15: 1-152 (Jan.) 1936

Radiation of Heat from Human Body: V. Transmission of Infra-Red Radiation Through Skin. J. D. Hardy and C. Muschenheim, New York.—p. 1.

Theobromine Sodium Salicylate as Vasodilator. Teresa McGovern, Ellen McDevitt and I. S. Wright, New York.—p. 11.

Studies of Hemolytic Streptococcic Infection: I. Factors Influencing Outcome of Erysipelas. C. S. Keefer and W. W. Spink, Boston. —p. 17.

Id.: II. Serologic Reactions of Blood During Erysipelas. W. W. Spink and C. S. Keefer, Boston.—p. 21.

Circulation Rate in Relation to Metabolism in Thyroid and Pituitary States (Decholin Method). J. W. Macy, T. S. Claiborne and L. M. Hurxthal, Boston.—p. 37.

Observations on Adrenal Insufficiency. J. Stahl, D. W. Atchley and R. F. Loeb, New York.—p. 41.

Effects of Inhalation of Helium Mixed with Oxygen on Mechanics of Respiration. A. L. Barach, with technical assistance of M. Eckman, New York.—p. 47.

*Nature of Peripheral Resistance in Arterial Hypertension, with Especial Reference to Vasomotor System. M. Prinzmetal and C. Wilson, Boston.—p. 63.

Effect of Drugs in Production of Agranulocytosis, with Particular Reference to Aminopyrine Hypersensitivity. W. Dameshek and A. Colmes, Boston.—p. 85.

Test for Abnormally Large Amounts of Parathyroid Hormone in Blood. B. Hamilton and W. J. Highman Jr., Chicago.—p. 99.

Plasma Lipids in Chronic Hemorrhagic Nephritis. I. H. Page, E. Kirk and D. D. Van Slyke, New York.—p. 101.

Plasma Lipids in Essential Hypertension. I. H. Page, E. Kirk and D. D. Van Slyke, New York.—p. 109.

*Changes Occurring in Macrophage System of Lungs in Pneumococcus Lobar Pneumonia. O. H. Robertson, Chicago, and C. G. Uhley, Minneapolis.—p. 115.

Filtrable Serum Calcium in Late Pregnant and Parturient Women, and in the New-Born. Marie Andersch and F. W. Oberst, Iowa City. —p. 131.

Problem of Antidiuretic Substance in Blood of Patients with Eclampsia and Other Hypertensive Diseases, with Observations on Spinal Fluid. G. Levitt, Chicago.—p. 135.

Liver Function as Tested by Lipemic Curve After Intravenous Fat Administration. A. Nachlas, G. L. Duff, H. C. Tidwell and L. E. Holt Jr., Baltimore.—p. 143.

Peripheral Resistance in Arterial Hypertension.—Prinzmetal and Wilson attempt to show whether the increased peripheral resistance is generalized throughout the systemic circulation or is confined to the splanchnic area; to what extent the vessels are responsible for the increased peripheral resistance capable of dilatation, and what part is played by the vasomotor nerves in the maintenance of the increased peripheral resistance; i. e., if arterial hypertonus is present, whether it can be attributed to an increase in sympathetic vasoconstrictor impulses. Determinations of resting blood flow in the arm in various types of hypertension (benign, malignant and secondary) give an average value no greater than that obtained from subjects with normal blood pressure. This indicates that increased vascular resistance in the different types of hypertension is not confined to the splanchnic area but is generalized throughout the systemic circulation. Patients with hypertension show increase in blood flow in response to heat and reactive hyperemia equal in degree to that produced in normal individuals, showing that the blood vessels in hypertension are capable of considerable dilatation and indicating that the increased peripheral resistance is due to hypertonus and not to organic changes in the vessel walls. Sympathetic vasodilatation produced by the "heat test" produces no greater increase in blood flow in subjects with high blood pressure than in normal individuals, suggesting that the vascular hypertonus is not vasomotor in origin. Patients with coarctation of the aorta, on the other hand, show a greater increase in blood flow in the arm in response to the heat test than controls or patients with generalized hypertension. This demonstrates that vasoconstriction of sympathetic origin is present in the upper extremities in coarctation of the aorta and affords confirmatory indirect evidence that the hypertonus in generalized hypertension is not of vasomotor origin. Anesthetization with procaine hydrochloride of the vasomotor nerves to the arm produces the same increase in flow in normal subjects and patients with hypertension, proving that the vascular hypertonus is independent of the vasomotor nerves and that this hypertonus must therefore be regarded as intrinsic spasm of the blood vessels themselves. Acute exacerbation of hypertension with change from the benign to the malignant type has been observed in one case. Such exacerbation is apparently not due to increased vasomotor activity but must be attributed to an increase in the intrinsic vascular hypertonus. These conclusions apply to all types of hypertension and, hence there is no physiologic evidence for the separation into "organic" and "functional" types or for the assumption that renal hypertension is due to vasomotor hypertonus. In blood vessels of the arm greater variations in blood flow are produced by vasodilator than by vasoconstrictor impulses. It appears that normal vasomotor activity is superimposed on the intrinsic vascular hypertonus. Surgical procedures aiming at the relief of high blood pressure by sympathectomy do not abolish the vascular hypertonus that is fundamentally responsible for the hypertension.

Macrophage System of Lungs in Pneumonia.—Robertson and Uhley made a histologic study of postmortem tissues obtained from forty cases of lobar pneumonia representing more than ninety separate lesions of the lobe of approximately known age, with the purpose of ascertaining whether or not the macrophages play as conspicuous a part in the later stages of the human pathologic process as was observed in the lesion of experimental lobar pneumonia in the dog. It was found that resolution of the consolidated lung was regularly accompanied by characteristic changes in the lung parenchyma and cellular exudate analogous to those occurring in the dog's lung at the time of recovery. The evolution of the whole process could be followed often in a single case when lesions of different ages were present. The first evidence of the reaction consists of an increase in the number of large mononuclear cells in the alveolar walls, many of which protrude into the air spaces. This results in a thickening of the septums. As the process develops, the large mononuclear cells become detached from the alveolar wall and enter the exudate, where they exhibit the form and phagocytic functions of the macrophages. These cells gradually replace the polymorphonuclears, the fibrin disappears progressively, and the lesion assumes the characteristic appearance of resolution. The same type of tissue cell reaction was observed in the lymph nodes at the hilus of the lung. Sections obtained from six patients dying at intervals of from six days to two months following recovery from lobar pneumonia showed a pronounced macrophage reaction in every instance. Whenever a well developed macrophage reaction occurred, pneumococci were observed to be few in number or absent, while micro-organisms were abundant in the majority of lesions of all ages in which the exudate was composed predominantly of polymorphonuclear leukocytes. Such marked differences in numbers of pneumococci were observed not only between lobar lesions but also at times in different parts of the same lesion in which areas of focal macrophage reaction were occurring. The macrophages were seen to be actively phagocytic and gave evidence of effective digestion of engulfed pneumococci. These data suggest that mobilization of the macrophages represents an immune response of the pulmonary tissue cells.

Journal of General Physiology, New York

19: 397-558 (Jan. 20) 1936. Partial Index

Relation Between Toxicity, Resistance and Time of Survival: Note. L. Reiner, Tuckahoe, N. Y.—p. 419.

Sulfhydryl and Disulfide Groups of Proteins: II. Relation Between Number of SH and S-S Groups and Quantity of Insoluble Protein in Denaturation and in Reversal of Denaturation. A. E. Mirsky, New York, and M. L. Anson, Princeton, N. J.—p. 427.

Id.: III. Sulfhydryl Groups of Native Proteins: Hemoglobin and Proteins of Crystalline Lens. A. E. Mirsky, New York, and M. L. Anson, Princeton, N. J.—p. 439.

Reducing Groups of Proteins. A. E. Mirsky, New York, and M. L. Anson, Princeton, N. J.—p. 451.

Journal of Urology, Baltimore

35: 1-126 (Jan.) 1936

Carbuncle of Kidney. R. C. Graves and L. E. Parkins, Boston.—p. 1.

Id.: Review of Literature, Discussion of Unilateral Localized Lesions of Kidney and Report of Case. P. H. McNulty, Chicago.—p. 15.

Analysis of Effectiveness of Nephrostomy in Treatment of Large Renal Calculi. V. S. Counseller and M. T. Hoerner, Rochester, Minn.—p. 21.

Bladder Displacement Secondary to Suppurative Arthritis of Hip and Osteomyelitis of Pelvic Bones in Children: Operation for Impending Perforation. A. B. Hepler, Seattle.—p. 32.

*New Method of Closing Suprapubic Bladder Incisions, with Remarks on Prevention and Treatment of Infection in Urinary Wounds. D. M. Davis, Phoenix, Ariz.—p. 41.

Roentgenologic Diagnosis of Urologic and Gynecologic Diseases of Female Bladder. E. G. Crabtree, M. L. Brodney, H. A. Kontoff and S. R. Muellner, Boston.—p. 52.

*Toxic Hyperplasia of Prostate Gland. R. W. Barnes, Los Angeles.—p. 70.

Intraprostatic Injections. T. M. Townsend, New York.—p. 75.

Mechanism of Increase of Blood Ammonia Concentration. H. E. Shih, San Francisco.—p. 82.

Bactericidal Effect of Levorotatory and Racemic Beta-Oxybutyric Acid in Urine. H. F. Helmholz and A. E. Osterberg, Rochester, Minn.—p. 86.

Retention of Urine in Fetus: Report of Case. T. Bynum Jr., Hamlin, Texas, and S. Cooper, Abilene, Texas.—p. 93.

Studies in Bladder Function: II. Sphincterometer. I. Simons, New York.—p. 96.

Simplified Cystometer: Elimination of Air Cushion in Mercury Manometer. H. M. Weyrauch Jr., Durham, N. C.—p. 103.

Improved Model of Braasch-Bumpus Punch Instrument. R. E. Tyvand, Dayton, Ohio.—p. 109.

*Skin Test for Diagnosis of Gonococcus Infections. B. C. Corbus, Chicago.—p. 112.

Method of Closing Suprapubic Bladder Incisions.—To shorten the period of disability and assure better healing, Davis diverted the urinary drainage entirely away from the operative incision in the abdominal wall and allowed the incision to heal by primary intention. The technic involved was a modification of the Pfannenstiel incision as adapted to bladder operations by MacGowan, Legueu and Kelly. The incision is made in the usual way except that it lies 4 or 4.5 cm. above the upper border of the symphysis. A mushroom drain is sutured into the bladder. The bladder is then protected by a finger in the prevesical space, and a stab wound is made from the outside through the middle of each rectus muscle and half way between the incision and the symphysis. A large curved clamp is passed through this stab wound. With it the drainage tube, a Dakin tube and a cigaret drain are drawn out together through the stab. The cigaret drain and the Dakin tube are then arranged so that they lie properly in the prevesical space, and the Dakin tube is tied to the drainage tube on a level with the skin. The incision is closed tightly in layers. The suturing of the recti closes the incision off completely from the prevesical space. The cigaret drain should not be constricted. It is withdrawn as usual on the second or third day, while the Dakin tube remains in place from five to seven days, so that if any signs of infection in the prevesical space appear, treatment with dilute solution of sodium hypochlorite can be begun at once. If this is necessary, it must be vigorous. Injections should be made every one or two hours, day and night. If there is any evidence of alkaline infection, dilute acetic acid of a strength sufficient to neutralize the wound should be used until the ammoniacal odor disappears and then hypochlorite solution substituted. The sinuses produced tend to contract rapidly, probably because they are closely surrounded by the muscle tissue of the rectus. Leakage of urine around the tube is rare, and the fistula tends to close quickly after the tube is removed. The author performed the operation in one case of impermeable stricture, two cases of prostatic hypertrophy with difficult catheterization and massive hemorrhage, and two cases of prostatic hypertrophy with severe infection and acute epididymitis. Drainage was maintained from five to 117 days. Four of the cases healed by primary intention, and the fifth, while infected, was healed at the end of seven days.

Toxic Hyperplasia of Prostate Gland.—Barnes carried out animal experiments in order to determine whether sterile prostatic secretion is toxic and, if so, its effect on animals in comparison with other substances of known toxicity. The work shows that prostatic secretion which contains no pus is quite toxic when injected into mice, rats and other animals, the toxicity of 1 cc. being comparable to that of one-fourth grain (0.016 Gm.) of morphine. The author believes that an excessive amount of prostatic secretion retained in the prostate results in absorption of this toxic substance, with resulting general and local toxic symptoms. He applies the term toxic hyperplasia of the prostate to this condition.

Skin Test for Diagnosis of Gonococcic Infections.—Corbus states that the standard bouillon filtrate (Corbus-Ferry) contains two specific substances. The one, when injected intradermally, is probably taken up by the histiocytes in the skin and produces a gonococcus antitoxin. The other presumably combines with the sensitizing antibodies and produces a typical allergic response in individuals infected with the gonococcus. These two reactions are easily demonstrated after twenty-four hours following a therapeutic dose of the bouillon filtrate. There is a large inflammatory zone, usually about 2 inches in diameter (antitoxin forming area), in the center of which is a smaller, elevated and darker red zone (sensitizing response). However, when the bouillon filtrate is heated in an autoclave at 15 pounds pressure for fifteen minutes for two periods, with average temperature of from 115 to 120 C., the antitoxin forming substance is destroyed and there remains a substance capable of eliciting a cutaneous response in individuals infected with the gonococcus. Having observed in a woman infected with the gonococcus what appeared to be a cutaneous wheal in the center of the inflammatory area produced by a therapeutic dose of bouillon filtrate, it appeared to the author that a similar reaction for diagnostic purposes might be obtained by using the filtrate. In order to prove definitely that the body is sensitized during gonococcic infections and that it is capable of giving an allergic response to the gonococcus protein contained in the gonococcus bouillon filtrate when injected intradermally, experiments were carried out which showed that the cutaneous test is founded on an allergic basis. The fact that this allergic state ceases with the disappearance of the gonococci may help to clarify many previously mistaken diagnoses and, in addition, furnish a specific test for a clinical cure.

Kentucky Medical Journal, Bowling Green

34: 1-40 (Jan.) 1936

Evaluation of Skin Tests in Diagnosis of Diseases of Allergy. F. A. Simon, Louisville.—p. 3.

Surgical Aspects of Postoperative Care. M. J. Henry, Louisville.—p. 9.

Medical Aspects of Postoperative Care. M. Flexner, Louisville.—p. 14.

The Temptations of the Doctor. T. E. Gouwens, Louisville.—p. 22.

Practical Prenatal Care. B. C. Overby, Paducah.—p. 25.

Resection of Kidney for Localized Pyonephrosis. J. R. Stites, Louisville.—p. 28.

Chordotomy for Relief of Intractable Pain. R. G. Spurling, Louisville.—p. 29.

Evaluation of Newer Methods of Handling Pulmonary Tuberculosis. E. B. Bradley, Lexington.—p. 30.

Pylorospasm in an Adult: Report of Case. F. G. Speidel, Louisville.—p. 38.

Maine Medical Journal, Portland

27: 1-22 (Jan.) 1936

Postanginal Sepsis. C. H. Gordon, Portland.—p. 5.

*Placental Extract in the Control of German Measles: Preliminary Report. J. Gottlieb, Lewiston.—p. 10.

Encephalitis as Complication of Measles: Case Report. L. M. Cutler, Bangor.—p. 12.

Placental Extract in Control of German Measles.—An opportunity to study the use of placental extract in the control of German measles came to Gottlieb during an epidemic in the Central Maine General Hospital and vicinity during April and

May 1935. The dosage administered by the various workers has been chosen arbitrarily from 5 to 2 cc. intramuscularly. May 16 the author gave sixteen nurses 4 cc. of placental extract intramuscularly, and from that date to May 29 forty-six of the hospital personnel received 0.2 cc. of the extract intradermally. None of this group had given a history of having had German measles previously. None of those receiving the large intramuscular dose (4 cc.) or the small dose (0.2 cc.) intradermally contracted the disease. Nine cases of German measles were contracted during that period by a group similarly exposed, but who had not received the extract by either route. Those who received 4 cc. of the extract intramuscularly complained of soreness at the site of inoculation for a period varying from one to three days. Those receiving 0.2 cc. intradermally developed areas of erythema and tenderness measuring from 2 to 10 cm. in diameter, which disappeared in from three to five days. No systemic reactions were noted in either series.

Medical Bull. of Veterans' Adm., Washington, D. C.

12: 221-332 (Jan.) 1936

Pulmonary Tuberculosis in Adults, with Especial Reference to Clinical Forms Suitable for Artificial Pneumothorax. J. L. Dubrow.—p. 221.
*Syphilis as Factor in Cardiovascular Disease: Review of Seventy Cases. M. L. Weber.—p. 228.
Arachnidism: Spider-Bite Poisoning. W. H. Chapman.—p. 241.
Traumatic Psychosis: Case Reports. E. D. McCullough.—p. 246.
Far Advanced Pulmonary Tuberculosis Treated by Phrenic Nerve Avulsion Combined with Artificial Pneumothorax. S. E. Stroube.—p. 249.
Management of Patients in Whom Artificial Pneumothorax Has Been Induced. D. C. Groves.—p. 251.
Indices of Arrested Pulmonary Tuberculosis. J. W. Green.—p. 253.
Allergy. A. C. Bradham.—p. 257.
Coexisting Organic and Functional Symptoms in Neuropsychiatric Conditions. F. E. Steele Jr.—p. 266.
Soma and Psyche. V. B. Williams.—p. 271.
Incidence, Treatment and Prognosis of Hypertension. C. L. Stretch.—p. 275.
How the Law Treats the Psychotic. J. P. Gunion.—p. 283.
Pitfalls in Psychiatric Examinations. L. M. Brown.—p. 288.

Syphilis and Cardiovascular Disease.—Weber bases his discussion on a review of syphilitic cardiovascular cases from the Nashville office and a review of the current literature. He finds that: 1. Next to the rheumatic and hypertensive arteriosclerotic groups of heart disease, syphilis is the most important etiologic factor in the production of cardiovascular disease. Men are affected more often. Negroes suffer more often from cardiovascular syphilis than white people, the ratio being about 3:1. 2. Aortitis is by far the most frequent manifestation of cardiac syphilis, aortic insufficiency and aneurysm closely following in frequency. Pure aortic insufficiency, aortitis and aneurysms, especially in persons in the fourth and fifth decades, are at least 90 per cent syphilitic. Direct syphilitic infection of the mitral and the tricuspid valve is so rare that some authors question its existence. 3. The condition underlying a syphilitic aortitis is an obliterative endarteritis of the vasa vasorum of the adventitia of the aorta, causing the intima to wrinkle and to lose its elasticity. The aortic wall weakens and stretches. The cusps of the aortic valve have a tendency to separate, bringing on a regurgitation, in contrast to the rheumatic infection of the aortic valve, which has a tendency to unite the cusps, causing stenosis. The heart is enlarged in most cases of aortic insufficiency. 4. Many years elapse between the onset of the infection and the appearance of cardiovascular symptoms, the average being from fifteen to twenty years. 5. The most frequent and early symptom is dyspnea, either on exertion or of the paroxysmal type. Precordial or substernal pain comes next in frequency. Giddiness, palpitation, nervousness and swelling of the ankles are commonly complained of. Signs found on physical examination in aortic insufficiency differ from those in aortitis. 6. A positive Wassermann reaction is found in the great majority of syphilitic heart cases, in from 80 to 90 per cent. X-rays, electrocardiographic tracings and oscillometry are other auxiliary methods helpful in arriving at a correct diagnosis. 7. In the seventy cases reviewed, the most prominent symptoms referable to the heart were shortness of breath in 85.7 per cent, pain over the chest in 60 per cent, dizziness in 20 per cent, nervousness in 14.3 per cent, and hoarseness, edema, cough and loss of sleep in 28.6 per cent. A diastolic murmur over the base was found in every case of aortic insufficiency. A harsh systolic murmur was elicited in cases of aortitis without aortic insufficiency, the second aortic sound having a ringing quality. The average pulse pressure in the aortic insufficiency cases was 102. Enlargement of the heart or/and the aorta by percussion and roentgen examination was discovered in 71 per cent. A positive Wassermann reaction was shown in 72.8 per cent.

Military Surgeon, Washington, D. C.

78: 1-80 (Jan.) 1936

Venereal Disease Problem in the American Expeditionary Force. H. H. Young.—p. 1.
Basic Biologic Aspect of War. L. A. Fox.—p. 22.
Rat Proofing in Relation to Military Operations and Endemic Typhus Fever. A. R. Sweeney.—p. 32.
Military Sanitation of Moses in the Light of Modern Knowledge. E. E. Hume.—p. 39.
Trichinosis Simulating Enteric Fever: Report of Two Cases. W. M. Huber.—p. 52.
Brief Résumé of Modern Thoracic Surgery. H. Lilienthal.—p. 58.
Visit to Medical Installations of Austrian Ministry of National Defense. H. W. Kinderman.—p. 62.

New England Journal of Medicine, Boston

214: 45-92 (Jan. 9) 1936

Blood Iodine Studies in Relation to Thyroid Disease: Basic Concept of Relation of Iodine to Thyroid Gland: Iodine Tolerance Test. H. J. Perkin, F. H. Lahey and R. B. Cattell, Boston.—p. 45.
Mortality Factors in Acute Appendicitis: Study of One Thousand Cases. E. D. Leonard, Chestnut Hill, Mass., and S. Derow, Newton Centre, Mass.—p. 52.
Symptomatic Psychoses with Bromide Intoxication: Their Occurrence in Southern New England. P. W. Preu, New Haven, Conn.; J. Romano, Denver, and W. T. Brown, New Haven, Conn.—p. 56.
Analysis of Three Hundred Cases of Asthma in Children. E. S. O'Keefe, Lynn, Mass.—p. 62.
Progress in Dermatology, 1935. H. P. Towle and J. L. Grund, Boston.—p. 65.

New Jersey Medical Society Journal, Trenton

33: 1-64 (Jan.) 1936

Treatment of Cataract in History. W. H. Hahn, Newark.—p. 7.
Causes and Management of Premature Labor. R. A. MacKenzie, Asbury Park.—p. 16.
Surgical Treatment for Intrapelvic Protrusion of Acetabulum: Report of Case. I. F. Gregory, Orange.—p. 23.
Lymphogranuloma Inguinale as Causative Factor in Production of Rectal Strictures. H. I. Silvers, Atlantic City.—p. 26.

New Orleans Medical and Surgical Journal

88: 413-484 (Jan.) 1936

Collapse Program in Advanced Pulmonary Tuberculosis. C. A. Thomas and S. C. Davis, Tucson, Ariz.—p. 413.
Total Thyroidectomy for Cardiac Disease. A. Ochsner and C. Gillespie, New Orleans.—p. 422.
Mycotic Infections of Skin. J. K. Howles, New Orleans.—p. 435.
*Trichiniasis in Louisiana. E. H. Hinman, New Orleans.—p. 445.
Clinical Aspects of Trichiniasis. R. H. Kampmeier, New Orleans.—p. 448.
Malingering: Report of Case. W. J. Otis, New Orleans.—p. 452.
Acute Mercury Poisoning. E. Hull and L. A. Monte, New Orleans.—p. 455.
Tumors of Mouth and Jaws. H. G. F. Edwards, Shreveport, La.—p. 460.

Trichiniasis in Louisiana.—Hinman made a routine study of 200 consecutive necropsies from the State Charity Hospital of Louisiana; infants were omitted. Small pieces of diaphragm muscle, measuring about 2 inches square were obtained, finely ground up and placed in a 1 per cent solution of pepsin with 0.5 per cent hydrochloric acid. About 200 cc. of the solution was used for each 10 Gm. of muscle, following the technic of McCoy (1931). This mixture was placed in an Erlenmeyer flask in an incubator at 37 C. for from five to six hours, during which time it was stirred continuously. By this method most of the muscle was digested, liberating the capsules if present. The material was strained through wire gauze into a funnel, which was closed by a rubber tube and pinchcock. Sedimentation was allowed to go on for one hour, after which a few cubic centimeters was drawn off from the bottom of the funnel and examined microscopically for the encysted capsules or larvae. Of the 200 human diaphragms examined, seven (3.5 per cent) were found to contain encysted larvae of Trichinella spiralis. From the numbers of larvae found in the diaphragms,

these cases must have been rather light infestations and probably produced few if any clinical manifestations. Serial sections failed to reveal any embryos in those instances in which the method was used. In two of the seven cases larvae were found active within the capsules, indicating that the infection had not been present long. The existence of a 3.5 per cent infestation with Trichinella points to the fact that trichiniasis cannot be regarded as a public health problem of no significance in Louisiana. Careful differential diagnosis should reveal the presence of clinical cases in this state. The digestion technic could be utilized in the examination of biopsy material from suspected cases and may demonstrate larvae that are too few to be found by serial section.

Ohio State Medical Journal, Columbus

32: 1-96 (Jan. 1) 1936

Aseptic Uretero-Intestinal Anastomosis. C. C. Higgins, Cleveland. —p. 17.
Pregnancy at Term Complicated by Staphylococcus Albus Septicemia and Cerebral Hemorrhage. C. J. Young, Cincinnati.—p. 24.
Present Status of Cancer Problem. A. Crotti, Columbus.—p. 25.
Hemolytic Jaundice: Report of Unusual Case. B. J. Dreiling, J. G. Brody and A. Randall, Youngstown.—p. 34.
Emotional Factor in Chorea. O. B. Markey, Cleveland.—p. 36.
Siamese Twins: Case Report. D. V. Courtright and E. R. Austin, Circleville.—p. 40.
Case Record Presenting Problems in Clinical Medicine. H. L. Reinhart and V. A. Dodd, Columbus.—p. 42.

Public Health Reports, Washington, D. C.

50: 1807-1848 (Dec. 27) 1935

The Rural Midwife: Her Social and Economic Background and Her Practices as Observed in Brunswick County, Va. Josephine L. Daniel and W. M. Gafafer.—p. 1807.
Statistical Study of the Ferguson Form Board Test. M. J. Pescor. —p. 1815.

51: 1-28 (Jan. 3) 1936

The Typhoid Control Program and Results of Thirteen Years' Work in Williamson County, Tennessee, 1929-1935. W. C. Williams and E. L. Bishop.—p. 1.

51: 29-52 (Jan. 10) 1936

Cultivation of Virus of Lymphocytic Choriomeningitis in the Developing Chick Embryo. Ida A. Bengtson and J. G. Wooley.—p. 29.
Histopathologic Reaction to Virus of Lymphocytic Choriomeningitis in the Chick Embryo. R. D. Lillie.—p. 41.

Radiology, Syracuse, N. Y.

25: 651-780 (Dec.) 1935

Study of Roentgenologic Appearance of Lobes of Lung and Interlobar Fissures. J. Levitin and H. Brunn, San Francisco.—p. 651.
Surface Landmark Chart for Use in X-Ray Examinations of Trunk. W. E. Anspach, Chicago.—p. 681.
*Duodenal Carcinoma: Its Relationship to Duodenal Ulcer. I. H. Startz, Boro of Queens, N. Y.—p. 688.
Considerations of Variable Recovery Factor of Tissue. J. G. Hoffman and M. C. Reinhard, Buffalo.—p. 698.
Some Lawsuits I Have Met and Some of the Lessons to Be Learned from Them: (Fourth Instalment). I. S. Trostler, Chicago.—p. 708.
Broncholiths and Stone Asthma. E. P. Pendergrass and A. A. de Lorimier, Philadelphia.—p. 717.
Leontiasis Ossea: Clinical and Roentgenologic Entity: Report of Case. J. H. Gemmell, Philipsburg, Pa.—p. 723.
Rôle of the Roentgenologist in the Proper Management of Pleural Adhesions Preventing Effective Pneumothorax Collapse. F. Baum, Newark, N. J.—p. 730.
Histologic Study of Effects of X-Rays on Frog Skin. A. E. Light, New York.—p. 734.
Effects of X-Rays on the Developing Chick. J. M. Essenberg, Chicago. —p. 739.
X-Rays and Radium in Treatment of Tumors of Conjunctiva. G. Peter, Mexico City, Mexico.—p. 745.

Duodenal Carcinoma.—Startz reports a rare case of duodenal ulcer of the supra-ampullary portion of the duodenum, combined with an independent primary carcinoma of the ampullary portion of the duodenum; both of these lesions were visualized clearly in roentgenograms. The patient died from internal hemorrhage—an erosion of a blood vessel within the duodenal ulcer. There were no signs present of intestinal obstruction. The patient was 34 years old. Metastasis was present to adjacent lymph nodes and the liver. Brill states that metastasis even to the contiguous lymph nodes is not common. The patient was not jaundiced. Eger states that in cases of carcinoma of the ampullary portion of the duodenum jaundice generally appears early. The roentgenologic study, if properly performed, is the strongest link in the chain of diagnostic methods. The well trained roentgenologist should be capable of detecting an "organic" lesion in the small intestine. However, an attempt to specify the exact nature and site of the lesion is often a shrewd guess and may result in a fantastic roentgen diagnosis out of gear with that of the necropsy report. The presence of symptoms and physical observations suggesting a gastro-intestinal malignant condition (including absence of free hydrochloric acid in gastric contents and presence of occult blood in stools), together with the recognition of a small intestinal organic lesion roentgenologically, should spell a preoperative diagnosis of carcinoma of the small intestine.

Review of Gastroenterology, New York

2: 279-372 (Dec.) 1935

Foods and Bulk Producing Drugs in Treatment of Chronic Constipation. W. A. Bastedo, New York.—p. 279.
Value of Selective Drugs in Treatment of Constipation. M. G. Mulinos, New York.—p. 292.
Physical Therapy in Constipation. R. Kovacs, New York.—p. 302.
Active Gastric Hemorrhage: Differential Diagnosis and Treatment. I. W. Held and A. A. Goldbloom, New York.—p. 307.
Pathologic Physiology of Icterus: I. Detection of Jaundice. N. W. Elton, Reading, Pa.—p. 331.
Trichobezoar (Hair Cast of Stomach): Case Report. C. F. Potter, Syracuse, N. Y.—p. 335.
Emotion and Diarrhea. A. J. Sullivan, New York, Conn..—p. 340.
Intestinal Obstruction Complicating Mesenteric Vascular Occlusion. M. Kraemer, Newark, N. J.—p. 342.
Burning Tongue. J. Schroff, New York.—p. 347.
The Red Cross Nursing Service. Clara D. Noyes, New York.—p. 354.

Rhode Island Medical Journal, Providence

19: 1-16 (Jan.) 1936

The Doctor Looks at the Cults. C. L. Farrell, Pawtucket.—p. 1.
Purpura Haemorrhagica. M. Adelman, Providence.—p. 9.

Wisconsin Medical Journal, Madison

35: 1-76 (Jan.) 1936

Prevention of Goiter in Wisconsin: A Challenge to the Medical Profession. A. S. Jackson, Madison.—p. 15.
Comparative Study of Series of Prostatectomies and Resections. H. E. Kasten, Beloit.—p. 18.
Prostatic Obstruction: Comparison of Results in Fifty Transurethral Resections and Fifty Suprapubic Prostatectomies. W. M. Kearns, Milwaukee.—p. 23.
Id.: Study of One Hundred and Seventy-Eight Cases. R. Irwin, Milwaukee.—p. 24.
Brief Résumé of Serodiagnostic Tests for Syphilis. M. J. Reuter, Milwaukee.—p. 30.
Pericardial Effusion in Myxedema: Report of Case. Marie L. Carns, Madison, and H. J. Lee, Oshkosh.—p. 33.
*Hypercalcemia and Hypophosphatemia; Simulating Hyperparathyroidism: Report of Three Cases. B. J. Birk and H. H. Huber, Milwaukee. —p. 36.
Hyperparathyroid Osteitis: Case Report. J. N. Sisk, Madison.—p. 41.
The Rôle of the Physician in the Care of Unmarried Mothers and Adoptive Children: New Laws Summarized. Dorothy Waite, Madison.—p. 59.

Hypercalcemia and Hypophosphatemia; Simulating Hyperparathyroidism.—Birk and Huber cite three cases from the study of which it is apparent that signs of decalcification in roentgenograms were lacking as well as other symptoms of hyperparathyroidism. But one constant feature in each case was hypercalcemia and hypophosphatemia, and this would strongly suggest hyperparathyroidism were it not for the fact that other definite signs were discovered. It is possible that in cases 1 and 3 there was a metastasis to the parathyroid with the consequent features simulating hyperparathyroidism and that in case 2 there was syphilis of the parathyroid causing secondary hyperparathyroidism. No postmortem studies were obtained in patients 1 and 3, and patient 2 is still alive. The authors wonder whether hypercalcemia and hypophosphatemia should be emphasized as pathognomonic of hyperparathyroidism at all or should rather be considered a secondary phenomenon caused by the excessive bone destruction in certain diseases which may involve the skeletal system. This view is opposed by Cantarow and Hare. It appears to the authors that a further study of blood calcium and phosphorus in malignant diseases and syphilis should be made. They believe that, when similar changes are observed, no matter how small the percentage may be, a parathyroidectomy would hardly be in order in every case of hypercalcemia and hypophosphatemia.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Disease in Childhood, London

10: 397-458 (Dec.) 1935

Coma with Glycosuria Not Due to Diabetes Mellitus. G. B. Fleming, Agnes Herring and N. Morris.—p. 397.
*Study of Sedimentation Rate in Juvenile Rheumatism. W. W. Payne and B. Schlesinger.—p. 403.
Serum Proteins in Normal Infants and Children: Note. J. B. Rennie. —p. 415.
Familial Acholuric Jaundice: Effect of Splenectomy on Red Cell Morphology: Four Cases. W. T. W. Paxton.—p. 421.
*Skin Reactions to Products of Hemolytic Streptococcus. H. J. Gibson and W. A. R. Thomson.—p. 429.
Medical Treatment of Congenital Pyloric Stenosis. Elisabeth Svensgaard. —p. 443.

Sedimentation Rate in Juvenile Rheumatism. — Payne and Schlesinger confirm the close relationship between rheumatic activity and the sedimentation rate. Acute tonsillitis and influenza may both cause more than a temporary rise in the sedimentation rate. This must be remembered when the test is used as possible evidence of active rheumatism. Chronic tonsillar infection on the other hand does not as a rule have any appreciable effect on the sedimentation rate. In acute chorea there is only a small, transient rise of the sedimentation rate. This may even be absent. No indication is given by the sedimentation rate of the possibility of subsequent cardiac involvement. In congestive cardiac failure the sedimentation rate frequently falls to normal even in the presence of active disease. This is a bad prognostic sign. The test is of value in detecting subacute rheumatism and miniature rheumatic fever following tonsillitis. When nodules are present the test has a prognostic significance. Fall of the sedimentation rate heralds their disappearance. In nonactive cases there were 140 children with no evidence of active rheumatism during the period of observation. Seventy-four of these had no signs of cardiac involvement and, with three exceptions, showed no rise in the sedimentation rate apart from intercurrent infections. There was no apparent reason for the raised values (17, 21 and 29 mm. maximum) in three cases, except for tonsillar sepsis in one instance. Sixty-six children had had heart disease at some time or other. The sedimentation rate was normal in fifty-six and raised in ten. This rise was transitory in five. Active rheumatism was present in eighty-nine cases. Sixty-six showed rapid improvement and were finally considered no longer active from the clinical standpoint. The sedimentation rate showed a corresponding fall to normal in fifty-eight. In seven the sedimentation rate was higher or lower than was to be expected, and in one apparently quiescent case a fresh rise in the sedimentation rate appeared to herald a reawakened activity with chorea sometime after the patient returned home. The activity was marked and prolonged in sixteen cases. Here without exception the sedimentation rate was raised in close agreement with the clinical condition. Seven fatal cases occurred. All but one showed a raised sedimentation rate, but not so high as in many of the acute cases in which recovery occurred. Cardiac failure was prominent in the one case with normal values. Hence with every type of rheumatism there is close agreement between the sedimentation rate and the clinical picture, and this has been confirmed in many cases in this series by the subsequent history. In only twenty out of the 229 cases was there any discrepancy.

Skin Reactions to Products of Hemolytic Streptococcus. — In an investigation of the relation of the hemolytic streptococcus to acute rheumatism, Gibson and Thomson performed intradermal reactions to an extract of a strain of that organism on 586 subjects, comprising rheumatic and control groups. The results suggest that great caution is necessary in interpreting any intradermal reaction. The possibilty of altering the reactivity of the patient by a test inoculation is suggested. The results recorded with horse serum seem to be applicable to the various diagnostic skin reactions. For example, the repetition of the double intradermal tuberculin test in cattle at short intervals might act as a sensitizing stimulus. The present study suggests that repeated intradermal tests not only sensitize but on a continuation of the series appear to produce desensitization. Thus an irregular wavelike succession of sensitive periods is produced. Only 13.6 per cent of the Dick tests gave positive readings and, in the light of subsequent work, it appeared likely that these were not all true toxin reactions. From subsequent studies of fluctuations in the reaction to both the test and control reagents, besides the failure to neutralize certain of these reactions by antitoxin it would appear that some at least were simply the chance association of simultaneous reactivity to some constituent of the "toxin" fluid with temporary absence of reactivity to a constituent of the "control" fluid to which the individual might be at other times allergic. These observations suggest an explanation of pseudoreactions in which the control test is of greater size than the toxin reaction or even, as in some cases, when the control solution alone gives a reaction. The curves suggest that in the hypersensitive individual the principle responsible for pseudoreactions to toxin and control fluids may be regarded as different reagents, more or less distinct from one another so far as skin reactivity is concerned. The neutralization of reactions by homologous antiserum seemed to be related to some extent to the serologic type of the organism. The skin reaction characteristic of the allergy of infection is not neutralizable and there is no reason to think that any true antigenic toxin was responsible for the lesions produced. The results throw doubt on the conception of the skin reaction to extracts of hemolytic streptococcus as a true example of the allergy of infection, at least in adults.

British Medical Journal, London

2: 1083-1138 (Dec. 7) 1935

Osteo-Arthritis and Its Concomitants. R. G. Gordon.—p. 1083.
Sea Bathing in Treatment of Surgical Tuberculosis. H. Gauvain. —p. 1087.
Radiation Therapy of Tongue Carcinoma. R. A. Gardner.—p. 1090.
*Orthopedic Operation for Cleft Palate. D. Browne.—p. 1093.
Mandelic Acid in Treatment of Urinary Infections. D. M. Lyon and D. M. Dunlop.—p. 1096.
Prevention of Severe Reactions in Gold Treatment of Rheumatoid Arthritis. H. J. Williams.—p. 1098.

Operation for Cleft Palate.—Browne adopted a procedure which combined many borrowed points and a few original ones into an operation for cleft palate that was more satisfactory than any he had tried before. It depends mainly on the deliberate freeing of the two separated ends of the sphincter, complete with nerve and blood supply, and their suturing in a plane closer than normal to the posterior wall. There is first the preliminary operation of removing the tonsils and cutting the posterior palatine arteries. Three months later the final stage is performed. The freeing incision runs from the canine tooth in front backward just inside the teeth, then along the line of the pterygomandibular raphe, cuts the anterior pillar of the fauces off the tongue, and ends in the middle of the empty tonsillar fossa. Through this, by forcible blunt dissection, the mucoperiosteum of the hard palate, the mucosa of the floor of the nose and the whole side of the nasopharynx are freed so that they fall inward and backward toward the posterior wall. Then from the bottom of the incision that frees the soft palate a double suture of forty-day number 1 chromic catgut is passed right round the back of the throat. It enters the tissues opposite the tip of the uvula, emerges in the middle of the posterior wall of the pharynx, is reinserted through the same puncture, and emerges again through the corresponding point to its insertion on the opposite side. The stitch should run behind the superior constrictor exactly in the line of Passavant's ridge. The action of this posterior part of the sphincter should be imitated exactly by pulling on the catgut and rucking up the back of the throat. The ends of this suture are left hanging out of the mouth, and the edges of the soft palate are deeply split. This split continues backward the gap between the mucoperiosteum of the hard palate and the nasal mucosa and runs, gradually diminishing in depth, to the tip of the uvula. The continuous nasal surface of soft and hard palate is then joined by interrupted sutures, plain ones for the nasal mucosa and vertical mattress ones for the soft palate. A ring suture is passed through the substance of the soft palate, just in front of the insertion of the tendon of the tensor palati, crossing the half-sutured gap in the middle and returning to its original insertion in a complete circle

round the line of the sphincter. It is left untied. The oral surface of the soft palate and the mucoperiosteum of the hard palate are joined by vertical mattress sutures, and any tiny gaps in the epithelial junction are closed. The soft palate thus constructed should lie much closer to the posterior wall of the pharynx than normal. The test of its proper construction is to make the patient gag, when the new mechanism should be seen to work properly at the first time, shutting the throat completely. The intratracheal catheter is withdrawn and the ring suture is tied. Its two loops are tied separately with several knots, tight enough to close the passage completely. The whole area is cleaned and swabbed with 1:1,000 acriflavine hydrochloride in petrolatum. Nonabsorbable sutures can be removed a fortnight after operation. The palates usually stiffen considerably from inflammatory infiltration during the first month and then slowly become more mobile again; in six months they are thin and thoroughly supple. The author used this method in more than seventy cases. The patients were more than 18 months of age but otherwise were unselected. Fifty-two cases healed completely by first intention. The functional results provoked spontaneous remarks on the improvement in speech.

Journal Obst. & Gynaec. of Brit. Empire, Manchester

42: 953-1186 (Dec.) 1935

Follicular Hormone and Ovulation Inhibition. G. Dahlberg.—p. 953.
*Human Infertility: Study of One Hundred Matings. A. W. Rowe.——p. 962.
Constriction Ring Dystocia. L. Rudolph.—p. 992.
Anemia in Gynecologic and Obstetric Practice in New Zealand. M. McGeorge.—p. 1027.
Blood Vessels of Involuting Uterus of Rabbit. E. A. Gerrard.—p. 1048.
Resistance to Proteolysis Found in Blood Serum of Aborting Women. E. Shute.—p. 1071.
*Is Estrin the Cause of Resistance to Proteolysis Found in Blood Serum of Aborting Women? E. Shute.—p. 1085.
*Amniography. F. J. Burke.—p. 1096.
A Thousand Cases of Abortion. T. N. Parish.—p. 1107.
Advanced Abdominal Pregnancy: Case. A. Sarkar.—p. 1122.

Human Infertility.—Rowe gives the results of a study of a consecutive series of 100 infertile couples to ascertain, so far as possible, the causal or contributory factors. Studies were made on both partners involving a general clinical and laboratory investigation of each, supplemented by comprehensive gynecologic and urologic studies on the wife and husband respectively. Although nine of the men and three of the women were adjudged normal, each series shows an incidence of constitutional conditions that could affect fertility actually in excess of the number of patients. In other words, 188 individuals present 213 constitutional disorders of a degree worthy of record. In addition to these, a large number of local conditions were discovered that could also influence the outcome of the mating. Each union in the series presented an average of nearly five significant impediments to fertile mating. Constitutional elements, notably the glandular disorders, are or may be correctable by proper therapeutic measures, a fact most pertinent to the possible solution of the problem. As the author conceives it, true fertility of the individual is the summation of the number of functions all maintained at normal levels coupled with a complete absence of all impeding agencies either local or constitutional. Varying degrees of infertility result as one or more of these criteria fail to be realized. Infertility is again a summation of all the subversive agencies in which the total, if below a critical boundary or zone, is incompetent to abolish the possibility of fertility but can lower its probability. When two partners of low fertility are united, the probability of successful impregnation and pregnancy is lowered still further, though each mated with one of high fertility might well participate in a fertile union. Therapy for the condition depends on the correction of all impediments that are correctable and palliation of those in which this represents the sole possibility; thus the index of fertility will be raised and may finally overstep the critical boundary. In that portion of the series in which therapy could be and was applied, the outcome has been correction in 50 per cent of the cases. With the development of more effective therapeutic approaches along all indicated lines, but more especially in the endocrine field, a still larger proportion of success may result.

Estrogenic Substance and Abortion.—As the danger of the patients' aborting was to be considered, Shute used two cases in which abortion was desirable from a medical point of view. The results demonstrate that the injection of a potent gonadotropic preparation of pregnancy urine may for a period of a few hours reproduce in the normal blood serum of the patient the effect ascribed to an estrogenic-like substance. If the work on animals is a guide to a proper interpretation of the phenomenon, estrogenic substance is actually produced by follicle ripening, and the effect on the blood serum may be due to this substance. No satisfactory explanation has ever been offered for the failure of the placental villi to penetrate the uterine wall as far as the serosal coat, since they normally are able to erode their way into the myometrium for a considerable distance. It has been taken for granted that there is a certain amount of maternal resistance to such encroachment of the fetal trophoblast throughout every pregnancy. When such resistance is excessive, pregnancy ends prematurely. The placental villi in normal and abnormal pregnancy themselves possess, and possibly secrete, the antagonist to their own erosive agents. Presumably the two tendencies exist during a normal gestation in a progressive equilibrium, and thus the intrusive villi are held in check. But excesses of the resistant factor induce premature termination of pregnancy. In this connection Philipp found estrogenic material principally in the chorionic layer on the fetal side of the placenta. The author finds it difficult to gather together all the different links in the evidence presented, but there seems good reason to believe that a substance closely resembling the estrogenic principle, if not actually the substance, is responsible for the appearance in the blood of spontaneously aborting women of a characteristic resistance to the action of the proteolytic ferment trypsin. That it is at least a major factor in the production of abortion has been indicated by extensive work on animals, and the foregoing fact strongly suggests that the same holds true for the human female. It is not improbable that pregnancy is interrupted before term by a premature activity or concentration of the agent or agents responsible for the onset of labor at term, and estrogenic material appears to play a major part in that event.

Amniography.—Burke points out that placenta praevia can be diagnosed by amniography. The most characteristic radiographic appearances of the placenta in utero are obtained when the placenta occupies the lower uterine segment. There are a number of factors that materially influence the success of the investigation. Obesity of the patient will defeat the most enthusiastic investigator. As the placenta cannot be seen unless it is viewed in profile, more than ordinary care is necessary in conducting the roentgen examination. The amount of amniotic fluid has an important bearing on the result. If there is an excess, the density of the shadow produced by the contrast medium may be insufficient for diagnostic purposes, and, unfortunately, there is no rapid method by which the amount of amniotic fluid can be estimated. On the other hand, if the fluid is scanty in amount, uterine puncture may be unsuccessful. This probably is the most serious obstacle in amniography, and in a certain percentage of cases it cannot be performed. In most cases amniography is unnecessary, yet a marginal placenta praevia, which may prove fatal, may at an early stage be indistinguishable from a mild accidental hemorrhage. Amniography in all cases of antepartum hemorrhage does not seem practical, nor is it likely to be profitable. The indications for amniography may perhaps be defined by stating that, if in a doubtful case of placenta praevia the history of the case, the physical signs and other important considerations, e. g., age of the patient, parity or desire for a live child, are sufficient to indicate cesarean section as a possible mode of delivery, amniography should be performed. But, if delivery will be natural in any case, there is little or nothing to be gained by subjecting the patient to the examination. The main value of amniography appears to be as a deciding factor for or against delivery by cesarean section. Therefore there is a definite place for amniography in antepartum investigation. The placenta is actually visualized so that there is no difficulty in deciding whether the placenta praevia is central, marginal or lateral in type. With such accurate information, and having due regard to other circumstances, the mode of delivery should

no longer be in doubt. If the diagnosis proves to be one of central placenta praevia, cesarean section can be undertaken with beneficial results to the child and in full confidence that the mother is not being exposed to unnecessary risk. If lateral placenta praevia is diagnosed, natural delivery can be awaited without undue apprehension for the safety of the mother or the child.

Journal of Physiology, London

85: 421-518 (Dec. 16) 1935

Two Types of Retina and Their Electrical Responses to Intermittent Stimuli in Light and Dark Adaptation. R. Granit.—p. 421.
Measurement of Red Cell Volume: Conductivity Measurements. E. Ponder.—p. 439.
Fall in Blood Lymphocytes of Dog Under Chloralose Anesthesia. J. M. Yoffey.—p. 450.
Vitamin B_1 Deficiency in Rat's Brain. J. R. O'Brien and R. A. Peters. —p. 454.
Slow Potential Waves in Superior Cervical Ganglion. J. C. Eccles. —p. 464.
*Fate of Antidiuretic Principle of Postpituitary Extracts in Vivo and in Vitro. H. Heller and F. F. Urban.—p. 502.

Antidiuretic Principle of Postpituitary Extracts.—Heller and Urban find that the antidiuretic hormone of the posterior part of the pituitary is adsorbed by the blood and by tissue suspensions in vitro. If the specific adsorbing capacity of defibrinated blood is 1, then those of muscle, brain, kidney and liver are 2, 2.5, 8 and 58. The adsorbing capacity of the tissues for the antidiuretic hormone is due to the presence in the tissue of a heat-labile substance that has been extracted. Extracts of liver adsorb more than extracts of kidney. The adsorbing substance can be removed from the extracts by animal charcoal. The blood and the liver contain an enzyme-like substance that destroys the active principle. The rate of destruction in vitro by the blood varies in different species. The quickest destruction occurs in human blood (from 25 to 50 milliunits per cubic centimeter of blood in from one and one-half to two hours). Cerebrospinal fluid neither adsorbs nor destroys the antidiuretic principle. After injection of large doses of postpituitary extracts the antidiuretic activity of the circulating blood of the rabbit disappears in from twenty to thirty minutes. The disappearance of the same amount of pituitary extract in the corresponding amount of blood in vitro takes from three to four hours. If large quantities of the antidiuretic hormone are injected intravenously into rats, part of it is excreted in the urine.

Tubercle, London

17: 97-144 (Dec.) 1935

*Measurements of Filter-Passing Particles of Tubercle Bacillus. E. M. Fraenkel and R. J. V. Pulvertaft.—p. 97.
Cavitation in Pulmonary Tuberculosis: Review of One Hundred Cases. R. Y. Keers.—p. 106.
Complement Fixation in Pulmonary Tuberculosis with S and R Antigens. G. B. Reed, Christine E. Rice, J. H. Orr and B. G. Gardiner.—p. 114.

Measurements of Filter-Passing Particles of Tubercle Bacillus.—Fraenkel and Pulvertaft obtained positive results with the injection of ultrafiltrates from tubercle bacilli (bovine type "Vallée") into guinea-pigs. Infection was obtained by injection into testes or lymph nodes of the neck (Ninni). Ultrafiltrates after filtration retaining other organisms were positive on seven occasions after passing collodion filters with pores of 0.75 micron, twice after passing filters with pores of 0.3 micron, and on three occasions after passing Chamberland's L candles. From these results the authors conclude that granules and smaller young tubercle bacilli, said by Morton Kahn to have a size of from 0.1 to 0.3 micron, may have passed through the filters. The filtrate produced mostly localized lesions on the site of the injection, with a few other foci in other organs, spleen or liver. Inoculation of the primary infection produced a generalized tuberculosis in the second generation. Tubercle bacilli could be demonstrated after infection by ultrafiltrates of cultures and by animal inoculation, when smears and sections were sometimes negative and histologic changes uncertain. Intracellular acid-fast granules were sometimes present in tuberculous lesions in both gland and spleen. These, however, probably partly consisting of acid-fast mitochondria, were also, although more rarely, present in normal controls.

Revue de Chirurgie, Paris

54: 669-756 (Nov.) 1935

Late Infectious Sequels of War Fractures of Limbs. Sarroste.—p. 669.
*Treatment of Occipital Neuralgia by Alcoholization of Carotid Artery. F. K. Kessel.—p. 739.
*Attempted Treatment of Impotence by Alcoholization of Spermatic Artery. A. Popow.—p. 749.

Treatment of Occipital Neuralgia.—If occipital neuralgia by analogy to neuralgia of the trigeminal nerve is a vasomotor neurosis, then, according to Kessel, influencing these vasomotors can cause the disappearance of the pain that accompanies the neuralgia. A review of the anatomy shows that the carotid artery with its internal and external branches is innervated principally by the sympathetic fibers which leave the cervical ganglion and the sympathetic chain and form the external and internal carotid plexus about these vessels. Interrupting these nervous passages by periarterial sympathectomy should prevent the pain caused by angiospasm. In two cases the author succeeded in stopping the pain of occipital neuralgia by interrupting these nerves. The technic consisted in careful dissection of the carotid artery. After denudation of the artery it was surrounded by compresses to preserve the surrounding tissues from the action of the alcohol. Then the walls of the artery were moistened with 80 per cent alcohol by means of small tampons. The walls of the vessel become first white and then dark. The impregnation lasts four or five minutes, after which the compresses are removed and the incision is closed. No light is thrown on the etiology of this condition, but the success and ease of the procedure recommend it in cases in which conservative measures prove ineffective.

Treatment of Impotence.—Popow discusses male sexual impotence in which the difficulty seems to be a functional disorder of erection. There appear to be several sources of nerve supply which control erection and it has been suggested several times that impregnation of the spermatic artery with various solutions might help the condition. In 1933 and 1934 the author performed thirteen operations on the sympathetic nerves of the spermatic artery by impregnation of the artery with 80 per cent alcohol. The operation, which is painless, is performed under a local anesthetic with 0.5 per cent solution of procaine hydrochloride. The incision is made near the external inguinal ring, the spermatic cord is isolated and the spermatic artery is impregnated with 80 per cent alcohol. As a rule the vas deferens is also impregnated. Care must be used in finding the artery. All but one of the patients were between the ages of 20 and 30 years. The results were good in all instances, but longer periods of observation and a greater number of patients are desirable.

Annali di Ostetricia e Ginecologia, Milan

57: 1711-1903 (Dec. 31) 1935

*Unilateral Castration by Roentgen Rays: Experiments. E. Momigliano. —p. 1711.
Diagnosis of Pregnancy with Bercovitz's Method. S. Defendi.—p. 1751.
Fatal Gravidic Toxicosis: Anatomopathologic Study of Case. F. Matteace.—p. 1759.
Traumatic Retroflexion of Uterus. G. Albano.—p. 1777.

Unilateral Castration by Roentgen Irradiation.—Momigliano carried out experiments producing unilateral castration in female rabbits by means of roentgen irradiations on an ovary of the animals. He also made comparisons of the results of this form of unilateral castration with those of surgical unilateral castration in the same animals. The results of the experiments proved that it is possible to cause unilateral castration by roentgen irradiations. No unfavorable effects are produced in the remaining ovary. The modifications produced in the remaining ovary are in relation to the phase of genital development of the animals. In prepuberal female rabbits the ovary develops rapidly, reaching a size greater than normal, and there is an early maturation of the follicles. In adult female rabbits in the period of sexual activity, the remaining ovary develops a compensatory hypertrophy, which affects especially the interstitial glands. The modifications produced in the remaining ovary by the roentgen irradiations are more favorable than those produced by surgical unilateral castration. It is probable that this is due to the mechanism of action of the roentgen irradiations, which permit the products of involution of the irradiated ovary to act as necrohormones and to be absorbed by the remaining ovary.

Riforma Medica, Naples

51: 1897-1936 (Dec. 14) 1935

Internal Medicine in Italy at Present Time. L. D'Amato.—p. 1899.
*Treatment of Empyema of Lung and Pulmonary Fistulas by Intrapleural Irradiations. O. M. Mistal.—p. 1905.
Late Laparotomy in Abdominal Contusions. G. Marsiglia.—p. 1910.

Treatment of Empyema by Intrapleural Irradiations.—Mistal advises direct irradiation of the pleural cavity by ultraviolet rays combined with currents of high frequency in the treatment of empyema and fistulas of the lung and pleura following artificial pneumothorax or complicating pulmonary diseases in which the pleura is opened as a result of a previous operation. The author uses an electrode 20 cm. in length and 6 mm. in diameter and containing a small amount of mercury, in contact with a neutral gas which causes elevation of the temperature of mercury and hence increases its tension and produces abundant ultraviolet rays. The electrode has also a chamber for ionization and is connected with a diathermy apparatus. The output of rays is constant and even. The instrument should be wrapped with soft and elastic rubber, only its distal end being left uncovered. The back part of the instrument is then inserted up to a fourth of its length into a hard rubber covering, through which the instrument is connected with the diathermy current. The patient is placed on the operating table in the same position as for a pneumothorax. Introduction of the electrode in the pleural cavity and irradiations are done under pleuroscopic control. The intensity of the current is carefully and slowly controlled, because of the great sensitivity of the tissues and because direct irradiations are ten times more intense than the indirect ones. The current is regulated by an assistant under the direction of the surgeon. The treatment has a bactericidal and also a biologic, osmotic and healing action on the tissues; it sterilizes the pleural cavity, diminishes the empyema until complete disappearance, and heals the pleura and the fistulas.

Prensa Médica Argentina, Buenos Aires

22: 2341-2386 (Dec. 4) 1935. Partial Index

Progress in Knowledge of Sterility in Women and Its Treatment. E. Fels.—p. 2341.
Tuberculoid Leprosy: Clinical and Histopathologic Study. S. Schujman.—p. 2347.
*Conduct to Be Followed with Port of Entry of Tetanus. F. M. Bustos.—p. 2368.
Pyrethrines in Treatment of Intestinal Parasitosis: Preliminary Report. L. E. Camponovo.—p. 2371.

Port of Entry of Tetanus.—Bustos discusses the advisability of intervention with wounds that are the port of entry of tetanus, when the disease is already in evolution. The author advises cauterization of the wound in the treatment of tetanus caused by penetrating and small superficial wounds and reports one case. Cauterization is done while the patient is under regional anesthesia by infiltration. In administering anesthesia, care should be taken to prevent the transference of bacilli from the wound to its surrounding tissues, which may occur if the needle is placed too close to the wound. It is important to precede any operation or treatment of the wound by repeated administrations of large doses of antitetanic serum, as any handling of the wound promotes diffusion and generalization of the toxins.

Archiv für Verdauungs-Krankheiten, Berlin

58: 249-372 (Dec.) 1935

Decomposition Products of Blood in Fecal Excretions in Disturbances of Gastro-Intestinal Tract. I. Boas.—p. 249.
*Demonstration of Occult Hemorrhages of Gastro-Intestinal Tract, with Especial Consideration of Copratoporphyrin and Hemoglobin. W. Häcker.—p. 268.
Clinical Significance of Modified Takata Reaction for Diagnosis of Hepatic Disturbances. R. Mancke and K. Margaronis.—p. 298.
Significance of Catalase (and Triboulet) Reactions for Diagnosis and Prognosis of Intestinal Disturbances. S. Kemp and T. T. Andersen.—p. 312.
Influence of Short Wave Therapy on Functions of Normal Stomach. H. Bauer.—p. 329.
Results of Dietetic Experiment (of Twenty-Five Months' Duration) in Case of Low Protein Intake. B. Süsskind.—p. 342.

Occult Hemorrhages of Gastro-Intestinal Tract.—Häcker, in investigating the method suggested by Boas for the detection of unchanged hemoglobin in the feces, found that the positive outcome of this test does not indicate the presence of unchanged hemoglobin, since he obtained the same results with feces that contained only hematin but no hemoglobin. He found also that under favorable conditions it is possible to detect copratoporphyrin (deuteroporphyrin) if only 1 mg. is present in 100 Gm. of feces, of which 10 Gm. is examined according to the method of Schumm. In comparative tests, Boas's modified method proved somewhat less sensitive than Schumm's method. The author describes observations on persons who, after having been kept on a blood-free diet for a longer period, ingested smaller or larger quantities of their own blood or of blood from cattle. He reaches the conclusion that, with the consideration of the sources of error, the demonstration of copratoporphyrin in the feces according to Schumm or Boas has diagnostic value. On the basis of the author's observations the pressure of copratoporphyrin indicates that hemoglobin or hematin has entered the intestine. In order to exclude the introduction of these substances from the outside, it is necessary to enforce a blood-free diet for some time preceding the test. However, the author stresses that a negative outcome of the copratoporphyrin test does not definitely exclude a source of bleeding within the intestinal tract, because after slight hemorrhages copratoporphyrin is formed in such small amounts that it is not detectable. He thinks that the hematin tests will as a rule be adequate in cases in which ulcer is suspected. In the case of negative outcome of the hematin test, he considers it advisable to search for copratoporphyrin and for increased quantities of protoporphyrin. In cases in which carcinoma is suspected, copratoporphyrin should be searched for.

Beiträge zur Klinik der Tuberkulose, Berlin

87: 227-338 (Dec. 18) 1935. Partial Index

Roentgenograms of Curative Processes in Tuberculosis of Bones and Joints. A. Rollier.—p. 227.
*Peculiar Anaphylactic Pulmonary Disease. D. Engel.—p. 239.
*Immunization Experiments on Guinea-Pigs with Killed and Dead Tubercle Bacilli. A. Berg.—p. 251.
*Medicothorax, a New Form of Pneumothorax Therapy. W. Müller.—p. 258.
Subphrenic "Pneumothorax": Subphrenic Pneumothorax Combined with Phrenic Exeresis. L. M. Kugelmeier.—p. 262.
*Meinicke Tuberculosis Reaction and Relations to Tuberculin Sensitivity of Skin. K. A. Lämmli.—p. 291.

Peculiar Anaphylactic Pulmonary Disease.—Engel calls attention to the so-called privet cough, which occurs in China with considerable frequency during May and June. It is popularly termed privet cough because it is believed that it is caused by the pollen of privet (Ligustrum sinense and Ligustrum lucidum). He describes observations he made on himself as well as on others. The general symptoms are mild; the sputum is of a canary yellow and has a slight metallic taste; there is a severe eosinophilia, and roentgenoscopy discloses a pulmonary infiltrate, which however is only temporary and disappears in a comparatively short time. The author thinks that the disorder is an allergic manifestation of the lung in the form of a circumscribed spotted pulmonary edema, which may be elicited by a type of pollen. He recommends the term "allergic vernal edema of the lung." He suggests that the so-called laurel fever, which occurs in the New England states, is an analogous disorder. Moreover, he thinks that the "succedaneous infiltrates," which Löffler observed in Europe and which have the same roentgenologic aspects as his cases of vernal edema of the lung, may be of the same nature. The vernal edema has differential diagnostic significance because of its roentgenologic similarity with tuberculosis.

Immunization with Dead Tubercle Bacilli.—In his experiments Berg used for the immunization of forty-eight guinea-pigs human tubercle bacilli that had been killed by high temperatures and of forty-eight others tubercle bacilli that had died in the course of prolonged storage after removal from the culture mediums. The immunization was done in the following manner: With 5 mg. of culture material, a suspension was made in 0.5 cc. of physiologic solution of sodium chloride and this suspension was injected into the animals three times, at intervals of two weeks. In half of the animals the administration was intraperitoneal and in the other half subcutaneous. Several weeks after the last injection, the animals were super-

infected by means of a mixture of three virulent strains. The doses used for superinfection were small. One half of the animals were infected with 0.000001 mg. and the other half with 0.00000002 mg. With the exception of one case, the immunization was a failure. In a small number of animals a slight immunizing effect was noticeable in that the disease process developed more slowly. The author concludes that his studies did not prove that treatment with killed tubercle bacilli produces immunity against tuberculosis.

Use of Disinfectants in Pneumothorax.—Müller decided to combine the curative action of the disinfecting substances, which formerly were introduced into the lung by means of inhalation, with pneumothorax therapy. He urged the construction of special pneumothorax apparatus, which permits the introduction of air charged with gaseous medicaments. He atomizes with the following prescription: acriflavine hydrochloride 0.25 Gm., triturated camphor 1 Gm., menthol 1 Gm., thymol 0.25 Gm. and sufficient oil of eucalyptus to make 10 Gm. This quantity is used for one pneumothorax. The most noteworthy effect of this medicothorax is the complete prevention of an exudate, which definitely proves that the pleural space has been sterilized. Another advantage of the medicothorax treatment is the more rapid cure of the tuberculous process. The disappearance of the fever is more rapid than in ordinary pneumothorax treatment.

Meinicke Tuberculosis Reaction.—Lämmli made the Meinicke reaction for tuberculosis on 240 persons. Among them were patients with pulmonary and other types of tuberculosis, patients with other disorders and healthy persons. In the course of these investigations the author was able to show that open tuberculosis and particularly the severe cases of this form produce a positive reaction more frequently and also with greater intensity than do the closed forms of pulmonary tuberculosis and the extrapulmonary tuberculoses. He found that clinical manifestations, such as exudative pleurisy, pneumothorax exudate and hematogenous disseminations, are more frequent in the cases in which the Meinicke reaction was weak. Tests on thirty persons without clinical signs of tuberculosis proved the differential diagnostic significance of the reaction and indicated that the extremely weak positive reactions should not be given a positive interpretation, for only the so-called curvature reaction (accumulation of sediment in the bottom curvature of the test tube) is reliable. Approximately 150 patients were subjected also to the Pirquet test, and its quantitative outcome was compared with the outcome of the Meinicke reaction. It was found that, as the Meinicke reaction becomes more strongly positive, the Pirquet reaction becomes weaker; that is, it appears that they are inversely proportional. In this connection the author suggests that, if the Meinicke reaction really indicates the amount of antibodies, it would seem that the quantity of antibodies in the blood serum and the tuberculin allergy of the skin (measured by the Pirquet reaction) are in inverse proportion to each other. Thus it appears that allergy and immunity do not run parallel but rather are inversely proportional.

Deutsche medizinische Wochenschrift, Leipzig

62: 1-40 (Jan. 3) 1936. Partial Index

Rôle of Natural and Acquired Resistance in Course of Pulmonary Tuberculosis. H. Beitzke.—p. 6.
Dick Test in Negroes of Western Coast of Africa. F. von Bormann.—p. 7.
*Early and Erroneous Diagnoses of Extra-Uterine Pregnancy. J. Granzow.—p. 13.
Cause and Treatment of Acute Polymyositis. H. Stursberg.—p. 17.
Withdrawal of Morphine with Ovarian Hormone. W. Pettersson.—p. 17.

Diagnosis of Extra-Uterine Pregnancy.—Granzow says that extra-uterine pregnancies present a great variety of clinical pictures. Amenorrhea and genital hemorrhage are not necessarily an indication of extra-uterine pregnancy and the Aschheim-Zondek test is of much less value for the recognition of ectopic pregnancy than for that of intra-uterine pregnancy. To be sure, its positive outcome has proved valuable in a number of cases of ectopic pregnancy, but its negative result does not permit the conclusion that there is no extra-uterine pregnancy. The author calls attention to Hegar's sign as an indication of normal pregnancy and says that extra-uterine pregnancy is indicated by a softening of the entire uterus, but particularly in the region of the upper part and of the fundus. He warns against the erroneous interpretation of the enlargement of the ovary by the corpus luteum in some cases of intra-uterine pregnancy, for this manifestation may suggest a tubal pregnancy in sensitive women. This possibility demonstrates the importance of correct palpatory examination, but the author warns against too forceful palpation, since it may cause rupture of the fetal sac. He describes the acute course of a ruptured tubal pregnancy and also the subacute form of extra-uterine pregnancy. Extra-uterine pregnancy may be mistaken for an incomplete abortion and may be subjected to curettage; such a procedure involves great danger in case of ectopic pregnancy and "diagnostic" curettage must be carefully avoided if there is a suspicion of ectopic pregnancy. Adnexitis is another condition that is readily mistaken for ectopic pregnancy. For the differentiation of these two conditions the author recommends diagnostic puncture of the Douglas pouch done only in the hospital. Other erroneous diagnoses that the author encountered in cases in which an ectopic pregnancy was established by a surgical intervention were menorrhagia, ovarian tumor and intra-uterine pregnancy complicated by myoma hemorrhages. He emphasizes that the possibility of an ectopic pregnancy should be more often taken into consideration in the case of obscure abdominal disorders of women.

Klinische Wochenschrift, Berlin

15: 1-40 (Jan. 4) 1936. Partial Index

Relation Between Protein and Mineral Substances and Its Significance for Ionic Antagonism. H. Järnecke.—p. 6.
Antitoxic Whooping Cough Serum from Horses. A. Demnitz, W. Schlüter and H. Schmidt.—p. 10.
Capacity of Human Blood to Decompose Acetylcholine. T. von Verebély Jr.—p. 11.
*Absence of Basal Joint Reflex in Epileptic Attack and Its Diagnostic Significance. G. Stiefler.—p. 16.
Is Diphtheria a Septicemic Disorder with Secondary Localization of Pathogenic Organisms on Tonsils? K. W. Clauberg.—p. 18.

Absence of Basal Joint (or Finger-Thumb) Reflex in Epileptic Attack.—Stiefler reviews the earlier literature on the so-called finger-thumb or basal joint reflex elicited by passive flexion of the basal joint (metacarpophalangeal) of one of the four three-jointed fingers (the third or the fourth is the best) and resulting in an oppositional movement of the first metacarpal, flexion of the basal joint of the thumb and extension of the terminal joint. The thumb remains in this position as long as the finger is held flexed. The author points out that this reflex, which was first described by C. Mayer, is a true joint reflex, a proprioceptive reflex in Sherrington's meaning of that term. It is related clinically and perhaps also biologically to Leri's sign on the forearm. It is elicitable in from 87 to 95 per cent of normal persons, that is, in those who are free from organic disease of the nervous system, but it is absent in young children up to the third year of life. The clinical value of the reflex lies in the fact that it is absent in paralysis and severe paresis in the region of the hand and fingers, resulting from focal disease of the brain. Moreover, the reflex is frequently increased in cases of meningitis. The author describes the behavior of this reflex in thirty-six patients with epilepsy. He and Mayer had observed during their early investigations that the absence of the basal joint reflex is characteristic for the fully developed epileptic attack and thus is helpful in differentiating the true epileptic attack from hysterical or simulated attacks, provided the reflex is present during the time the patient is free from the epileptic attack. The author found that during the postparoxysmal coma the light reflex of the pupils returns to normal much earlier than the basal joint reflex. He resorted to Foerster's method of artificial production of epileptic attacks by means of hyperventilation and thus was able to observe the basal joint reflex "from beginning to end." In regard to the epileptic mental disturbances, the author says that, in the cases of excitation and distraction in which the pupillary light reflex is abolished, the basal joint reflex is either missing or reduced while there are no changes in the abdominal, knee and plantar reflexes. From this the author concludes that the behavior of the basal joint reflex deserves especial attention in cases of suspected epileptic mental disturbances. The value

of the basal joint reflex in epilepsy is reduced, however, because it is missing or is asymmetrical in almost 10 per cent of epileptic patients (investigations in 350 cases of epilepsy). However, the author thinks that this disadvantage is not nearly as great as the advantages of the reflex and concludes that the basal joint reflex is an important criterion for the completely developed epileptic attack in those cases in which it can be elicited outside the attack.

Medizinische Klinik, Berlin

32: 1-40 (Jan. 3) 1936. Partial Index

Hemorrhagic Diathesis During Senility. H. Curschmann.—p. 1.
Surgical Treatment of Pulmonary Abscess. A. Rütz.—p. 4.
Advantages and Dangers of Winter Sports. Marloth.—p. 9.
Pulmonary Diseases as Result of Occupational Injuries. J. E. Kayser-Petersen.—p. 14.
*Rickets and Menarche. H. Dworzak.—p. 17.
*Treatment of Pneumonia with Quinine-Calcium. F. Raue.—p. 19.
Question of Exchange Between Blood and Brain. G. Jorns.—p. 21.

Rickets and the Menarche.—Dworzak points out that some diseases of childhood, particularly rickets, influence the time of onset of the menstrual function. At his clinic it had been noted that the menstrual function appeared rather late in women who had had rickets when they were children. To obtain data, he compared the time of menarche in 1,200 women who had had rickets and whose skeletal system showed post-rachitic changes with the time of menarche in 1,220 women who had no signs of rickets. Since all the women came from the same territory and from about the same social stratum, climatic, residential and social factors can be disregarded in this material. Tabular and diagrammatic records of the results of the author's studies indicate that the onset of the menstrual function is considerably retarded in rachitic women. He cites other investigators who observed a retarded menarche in women with kyphoscoliosis and he also cites a report about the comparatively high incidence of pelvic anomalies in women in whom the menarche had been late. He reviews animal experiments which demonstrated the development of ovarian and uterine disturbances in animals with experimental rickets. In this connection he points out that it is a widely accepted opinion that rickets is not confined to the skeletal system but involves other systems as well. In view of the animal experiments mentioned, the author considers it probable that the ovaries frequently become impaired in case of rickets.

Treatment of Pneumonia with Quinine-Calcium.—Raue treats cases of lobar pneumonia with quinine-calcium (a stable solution of the calcium and quinine salt of levulinic acid, containing 0.9 per cent of calcium and 3 per cent of quinine). He commences with the intravenous injection of 10 cc. of this solution. In cases of average severity, he follows this first injection with daily intramuscular injections, and in severe cases with an intravenous injection in the morning and an intramuscular injection in the afternoon, every day until the fever has disappeared. The author found that this treatment produced a favorable effect primarily in cases in which it was begun on the first or second days. In these cases the fever disappeared rapidly, the general condition improved and the local process was rapidly absorbed. The course of the disease was considerably shortened. In patients in whom the quinine-calcium treatment was begun between the third and sixth days after the onset, the influence on the general condition was likewise favorable but the course was not noticeably shortened. The author considers this mode of treatment especially advantageous for the general practitioner, because the majority of patients come under his observation on the first or second day after the appearance of the first symptoms of pneumonia. The quinine-calcium treatment should be instituted at once, even if the diagnosis is not yet absolutely certain. If the intravenous injection of quinine-calcium should prove difficult, an intramuscular injection can be given. The injection should not be made into the fatty tissue of the gluteus but rather deep into the muscle. If this is done the injection is well tolerated and abscess formation is avoided. Another reason why the quinine-calcium treatment is especially advantageous for the general practitioner is that the serotherapy of pneumonia presents certain difficulties for him.

Strahlentherapie, Berlin

54: 597-724 (Dec. 21) 1935. Partial Index

*Roentgen Irradiation of Kidneys in Case of Poisoning with Mercury Bichloride. J. Balázs and W. Czunft.—p. 600.
Irradiation of Postoperative Relapses of Uterine Carcinoma. I. von Büben.—p. 607.
Roentgenotherapy of Mastitis. E. von Gajzágó.—p. 639.
Examination of Fine Biologic Structures. J. von Herman.—p. 645.
*Analgesic Action of Roentgen Rays. P. von Mészöly.—p. 658.
Radium Treatment of Climacteric Hemorrhages. J. Molnár.—p. 664.
Injuries Caused by Roentgen Rays. G. Nánásy.—p. 670.

Roentgen Irradiation of Kidneys in Mercury Bichloride Poisoning.—Balázs and Czunft state that Stephan was the first to employ roentgen rays for the purpose of counteracting nephritic anuria. Later other investigators tried to find an explanation for the onset of the diuresis from four to eight hours after exposure to roentgen rays. Some authors assumed an irritating action, while others ascribed the efficacy of the treatment to the action of the rays on the vessels of the kidney. It was the aim of the authors to investigate (1) whether roentgenotherapy is capable of counteracting an existing anuria and (2) what effect is obtained in cases of milder renal lesions or in oliguria. They emphasize that in estimating the results it is necessary to take account of the fact that in cases of poisoning with mercury bichloride the anuria as well as the oliguria may subside spontaneously. They think that an irradiation can be considered effective only if the favorable effects become manifest within the first twenty-four hours after the irradiation. The authors report the results they obtained with roentgen treatments in eight patients with anuria and in ten patients with oliguria. In some cases they employed larger doses (150 roentgens depth dose) on two successive days or they employed smaller doses (115, 100, 60 or even less roentgens) on two or more successive days, but with the exception of one case the anuria was never counteracted. Even in the one case the effect of roentgenotherapy is not certain, for an improvement to the extent observed has been known to occur in cases in which irradiation has not been employed. In the ten patients with oliguria, only smaller roentgen doses were applied. In these patients the quantity of urine increased after irradiation, but the specific gravity either was reduced or remained the same. The authors reach the conclusion that in case of poisoning with mercury bichloride it is permissible to administer several small doses of roentgen rays as an adjuvant to the usual therapeutic methods, but it cannot be expected to counteract the anuria with roentgen rays.

Analgesic Action of Roentgen Rays.—Von Mészöly employed roentgen rays for analgesic purposes in 142 patients, thirty-seven of whom discontinued the treatment before completion. Of the remaining 105 patients, ninety-five had neuralgia and ten received roentgen treatment for postoperative pains. Of eleven patients with trigeminal neuralgia, eight were cured and two were considerably improved, while in one patient the pains recurred with their former intensity. Roentgenotherapy was resorted to only in the cases in which no pathologic processes were detectable; that is, in cases in which the neuralgia was idiopathic. The rays were applied to the lateral portion of the face on a field measuring 10 by 8 cm. The tension was 170 kilovolts and the filter consisted of 0.5 mm. of zinc. From 400 to 450 roentgens was administered at one session. The doses were repeated at intervals of six weeks. Whenever the first treatment was not sufficiently successful, from 240 to 300 roentgens was applied to the site of exit of the nerve at the second or third session. The irradiation was usually followed by slight hyperemia, swelling and temporary increase in painfulness, but after that the improvement became evident. The author further reports his observations on sixty-seven patients with sciatica, of whom forty-two were cured, eighteen considerably improved and five slightly improved, while two were entirely refractory. Considerable improvement was obtained also in seventeen patients with other types of neuralgia (occipital, intercostal, brachial and so on). For the purpose of relieving postoperative pains, roentgen rays were employed in four cases of appendectomy, in two cases of tonsillectomy and in four cases after tooth extraction. The pains disappeared after one or two irradiations.

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57: 505-602 (Dec. 12) 1935. Partial Index

Studies on Cutaneous Turgor in Children. J. Jochims.—p. 516.
Studies on "Carbohydrate Hormone" of Anterior Lobe of Hypophysis in Blood in Case of Glycogen Storage Disease. W. Hertz.—p. 525.
Behavior in Mother and Child of Specific Amboceptor Against Bordet-Gengou Bacillus. C. Bennholdt-Thomsen.—p. 532.
Acidosis and Great Respiration in Toxicosis of Nurslings. J. Csapó and B. Wollek.—p. 554.
*Sex Ratio in Children's Diseases. W. Bonell.—p. 568.

Sex Ratio in Children's Diseases.—Bonell defines as sex ratio the number of male patients corresponding to 100 female patients. A sex ratio of 100, that is, an equal number of male and female patients, is comparatively rare. During childhood the exposure is practically the same for males and females and the differences in the incidence of children's diseases in boys and girls is primarily due to constitutional and predispositional factors. The author calls attention to the fact that androtropy or gynecotropy may eventually be simulated. This is possible if only the total number of cases of illness is considered, without paying attention to the ratio between males and females in the group of population that is under consideration. The author shows that there are some diseases the sex ratio of which undergoes apparent or real changes in that, for instance, their androtropism changes to gynecotropism; that is, they are poikilotropic disorders. In considering the total morbidity, the author reviews an American and a Russian report. These reports indicate that during the first quinquennium of life, but particularly during the first year, the morbidity is greater in boys than in girls. In analyzing the figures the author found that this greater morbidity in boys changes to a greater morbidity in girls in America during the sixth year of life and in Russia during the eighth year of life. The author points out that most of the developmental anomalies (situs inversus, left-handedness, hernias, Hirschsprung's disease, congenital cardiac defects and so on) show a decided androtropism. In analyzing the acute infectious diseases, he admits that a strict differentiation into androtropic and gynecotropic infections is difficult; however, there is some evidence that in boys there is a predominance of the infections that have a neurotropic tendency, whereas in girls there seems to be a predominance of those which have a dermatotropic tendency. Whooping cough is decidedly gynecotropic. Regarding rickets, the opinions differ considerably, some considering it androtropic and others gynecotropic. The manifestations of exudative diathesis are decidedly androtropic. The author also considers the sex ratio of the blood diseases and of several other disorders.

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129: 137-362 (Dec. 16) 1935. Partial Index

Distribution Leukocytosis and "True" Leukocytosis. F. Hoff.—p. 137.
*Investigations on Pathogenic Connection of Pernicious Anemia and Splenomegalic Polycythemia. E. Baráth and J. Fülöp.—p. 172.
*Influence of Bath on Intrapleural Pressure and Venous Pressure. E. Krüger and G. Budelmann.—p. 178.
Clinical Aspects of Morbus Cushing. K. Horneck.—p. 191.
Electrocardiogram in Exophthalmic Goiter. G. W. Parade and H. R. Foerster.—p. 198.
Observations in Porphyria. K. Hoesch and C. Carrié.—p. 214.

Pernicious Anemia and Splenomegalic Polycythemia.—Baráth and Fülöp, after calling attention to the importance of Castle's intrinsic factor in pernicious anemia, point out that Morris and also Hitzenberger have suggested that an excess of Castle's intrinsic factor might play a part in polycythemic conditions. However, although it is highly probable that Castle's intrinsic factor is increased in patients with polycythemia, there is as yet no definite clinical proof. Accordingly the authors decided to investigate the effect of the gastric juice of patients with polycythemia on the blood picture of pernicious anemia. They had under observation three patients with splenomegalic polycythemia who had erythrocyte values between seven and eight millions. The examination of the gastric function disclosed severe hyperacidity. In order to obtain their gastric juice for the treatment of five patients with pernicious anemia, the polycythemia patients were given 200 Gm. of beef and then a subcutaneous histamine injection of 0.5 mg. After that the gastric juice was withdrawn for from three to five hours, the usual yield being from 500 to 600 cc. This gastric juice was filtered and neutralized and then administered rectally to the patients with pernicious anemia in quantities of from 200 to 300 cc. These rectal administrations were repeated for several days until a total of from 800 to 1,400 cc. had been reached. The withdrawal of the gastric juice from the polycythemia patients was continued for several weeks, so that there always was a supply. In five cases of pernicious anemia the erythrocyte values increased rapidly, while in a sixth case, which had been refractory to other therapeutic measures, only a slight increase in erythrocytes was obtained. The authors proved the efficacy of the gastric juice of polycythemia patients in the reticulocytic test on rats (K. Singer's method). On the basis of their observations, they reach the conclusion that pernicious anemia and splenomegalic polycythemia are opposites. In the first condition there is a deficiency of the hematopoietic gastric substance, while in the second condition there is an excessive production of this substance. The withdrawal of large quantities of gastric juice following feeding with meat and subcutaneous injection of histamine has a favorable effect on polycythemia, provided the treatment is continued for a long period. The authors concede that this treatment of polycythemia will probably not have a lasting effect.

Influence of Bath on Venous Pressure.—According to Krüger and Budelmann, it has been determined that the venous pressure increases during bathing. They think that this increase is a result of the hydrostatic pressure. In this connection they point out that Schott determined that the intrapleural pressure increases under the influence of the hydrostatic pressure, and they maintain that this is a result of the compression of the thorax by the water. They decided to investigate to what extent this increase of the intrapleural pressure will explain the increase of the pressure in the extrathoracic veins and also whether this change in the intrapleural pressure during bathing may influence the venous backflow. They found that the hydrostatic pressure of the bath effects an increase in the intrapleural pressure. The volume of the intrapleural increase in pressure is determined by the height of the water column that stands above the thorax during bathing. The pressure in the intrathoracic veins (superior vena cava) and in the extrathoracic veins (jugular vein) increases together with the intrapleural pressure. The extent of the pressure changes in these veins is dependent on that of the intrapleural pressure change. The authors assume that the increased pressure in the extrathoracic veins (to the extent that they are within the region of the superior vena cava) is entirely determined by the intrapleural pressure changes and is not a result of the backflow. The intrapleural pressure increase during bathing, in case of equal hydrostatic pressure, is greater when there is no discharge of air from the lung.

Vrachebnoe Delo, Kharkov

18: 819-882 (No. 10) 1935. Partial Index

Infection Therapy of Cancer. F. M. Brikker.—p. 827.
*New Treatment of Leprosy. Ya. P. Rozental.—p. 835.
Carcinoma of Testicles in Children. A. L. Fisanovich.—p. 839.
How to Regard Cancer of Neck of Uterus. L. L. Okinchits.—p. 845.
Clinical Diagnosis of Congenital Atresia of Biliary Tracts. P. M. Vitlina and F. A. Revis.—p. 865.
Symptoms of Primary Lymphogranuloma of Mediastinum. P. P. Litova.—p. 867.

Treatment of Leprosy.—According to Rozental, this treatment was introduced by Gordon A. Ryrie and consists of intravenous injections of aniline dyes that exhibit a selective affinity for the leprous lesions. The immediate effect of this chemotherapy is an intense bluish discoloration of the leprous lesions. Lesions containing bacilli are discolored more than those containing none or a few. The more intensely discolored lesions undergo a more rapid involution. Patients complain of an intense itching of their leprous lesions on the same or the following day after injection. There may be a sense of intoxication, general malaise, dryness of the mouth and mild sweating. Because of varied response, the treatment must be strictly individualized. The author treated thirty-one patients in all stages of leprosy, using a 0.5 per cent solution of brilliant green or a 1 per cent solution of methylene blue. The dose ranged from 5 to 30 cc. and was repeated every five or six days. Seven patients were rendered bacillus negative within two months, while the rest showed a marked diminution in the number of the bacilli and an improvement in the ulcerative lesions. The author did not observe any untoward effect on the kidneys.